Introduction

Printing and Publishing EDC

1 The Economic Development Committee for the Printing and Publishing Industry was set up in January 1966. Its terms of reference are, in effect, to determine where the industry now stands, what its relative rate of progress is, and in what ways it could make better progress. Membership is tripartite: government, management and unions, with the addition of an independent member, a representative of the National Economic Development Office, and an independent chairman. The members are listed in appendix 1.

Imports and exports of print

2 Between 1958 and 1968 UK imports of print increased by over 400 per cent. Exports increased by 160 per cent in the same period. An EDC investigation drew attention to a number of factors which were leading British print buyers to go abroad, particularly for books, periodicals, brochures and catalogues, printed in colour by litho or gravure. These factors included lower prices, higher quality, earlier quoted delivery times, fulfilment of delivery promises, and better customer service.*

The Joint Mission

3 The Printing and Publishing EDC decided in 1968 to sponsor, together with other industry organisations, a team representative of management and unions to follow up this investigation. The team's terms of reference were:

> 'To visit printing plants abroad, examine their mode of operating and report on their efficiency compared to similar plants in the UK, concentrating on colour printing, particularly by litho and gravure, with special reference to children's books, periodicals, travel brochures and trade catalogues.'

4 The team was made up of five management and five trade union members, with two representatives of the National Economic Development Office:

†*Charles Alister*, Deputy director, and head of industrial relations division, British Federation of Master Printers.

‡*Felix Bellingham,* General secretary, Society of Lithographic Artists, Designers, Engravers and Process Workers.

Roderick Boyd, Technical director, Richard Clay Ltd.

---

* The results of the investigation were published in *Imports and Exports of Print,* NEDO 1968, now out of print. An updated booklet on imports and exports is available from the NEDO publications department, free of charge.

† Charles Alister was unable to visit the USA and Robert Gedling, labour secretary of the BFMP, deputised for him on this visit.

‡ EDC members.

‡*Granville Eastwood,* General secretary, Printing and Kindred Trades Federation.

‡*Ron Emerick,* General secretary, Amalgamated Society of Lithographic Printers (now national officer, National Graphical Association).

Roy Hutchings, National officer, National Graphical Association.

Henry Kendall, Head of management services division, British Federation of Master Printers.

Edward Manning, Group labour relations manager, E S & A Robinson (Holdings) Ltd.

William Miles, National assistant secretary, Society of Graphical and Allied Trades.

Peter Robinson, Joint managing director, British Printing Corporation Ltd.

‡*Robert Speddy,* National Economic Development Office.

Christopher Groome, National Economic Development Office, secretary.

5 Short biographies of the members of the mission are given in appendix 2.

Method of working

6 Over a period of nine months, we visited six printing firms in the UK, two in Italy, four in West Germany, three in Holland and twelve in the USA. The firms covered all the kinds of work specified in our terms of reference, although we were unable to visit a continental plant which concentrated on children's books. In addition, contact was made with various government, trade association and trade union representatives. The full list is contained in appendix 3 and descriptions of firms in appendix 4.

7 For convenience, we formed three groups to investigate respectively marketing and finance, production, and industrial relations. Although these groups concentrated on particular subjects, they were not mutually exclusive and all their conclusions were discussed and endorsed by the team as a whole.

8 This report is based on what we saw in the firms we visited and from what we learned from our other contacts. All our observations are not true of every firm, nor are the firms we visited necessarily representative of their countries' printing industries. Wherever possible, we selected firms well established in international markets or which were said to be advanced in other aspects of business enterprise. To give balance to our findings, we also included some firms without these characteristics.

9 Whilst the report is mainly concerned with particular types of firm, many of our observations are equally relevant to the industry as a whole. We have tried to identify the factors contributing to success in the firms we visited, and to concentrate on fundamental issues.

---

‡EDC members.

Operating environment

Economic background

10 Over the past decade the overseas countries we visited have all enjoyed a rate of national economic growth faster than our own. Their outlook has been expansionist, and they have invested heavily in the future. General business optimism has enhanced the prospects for their printing industries and enabled managements and workpeople to look ahead with confidence to a rising demand for their products and services.

11 Outline economic information on the countries visited is given in tabular form in appendix 5, which also shows the shape and size of other printing industries compared with our own.

12 Tables 1 and 2 show the patterns of trade of the countries we visited.

Comparative wage costs

13 The general level of wages in American industry is well above the British level, even taking into account the higher cost of living. For the other countries visited, detailed comparisons are hard to interpret, but it seems that the combined cost of wages and social security contributions is higher in Holland and West Germany than in the UK and Italy, where they are roughly equal.

Table 1 Patterns of trade in print/all printed matter/1968/$ million

	Importing country					Total exports to world
	UK	*Holland*	*Italy*	*West Germany*	*USA*	
Exporting country						
UK	–	3.8	1.7	4.1	31.1	164.8
Holland	10.4	–	1.0	9.7	9.4	71.6
Italy	7.4	2.1	–	8.8	5.5	85.9
West Germany	10.3	15.4	8.4	–	17.8	177.6
USA	26.8	5.3	9.2	5.1	–	293.7
Total imports from world*	88.0	40.2	23.6	57.6	115.4	–

* cif, other figures are quoted fob.
Source: OECD.

Government aid

14 Some British printers have the impression that their overseas competitors receive more government aid and enjoy more favourable tax treatment than British printers, particularly in relation to exports. We found little evidence of this in the firms we visited. As in the UK, incentives seem to be confined to

special grants for investment and for moving to development areas, although one company, said to be exceptional, received long-term loans at low interest rates.

Table 2 Patterns of trade in print/commercial printing*/1968/$ million

	Importing country					Total exports to world
	UK	*Holland*	*Italy*	*West Germany*	*USA*	
Exporting country						
UK	–	0.9	0.6	1.3	5.2	45.8
Holland	3.4	–	0.6	4.8	1.4	28.1
Italy	1.4	0.4	–	4.2	1.3	18.0
West Germany	5.5	7.6	2.7	–	3.7	56.6
USA	6.1	1.3	1.7	2.0	–	58.0
Total imports from world†	28.7	15.1	8.5	19.4	26.0	–

* All printed matter other than books and pamphlets, newspapers and periodicals.
† cif, other figures are quoted fob.

Source: OECD.

15 It has been suggested that the aid given to European countries in the immediate post-war years under the Marshall Plan gave impetus to the building of new plants. This aid, however, ceased many years ago. Since then, our main competitors have continued to invest from their own resources at a higher rate than ourselves.

Government services

16 The only government representatives we met were in the USA, where the Federal Department of Commerce provides a comprehensive statistical and advisory service to the industry. We were impressed by this service and surprised that managements in the firms we visited appeared to make little use of it. The trade unions, however, found the statistics valuable in assessing future manpower requirements. Industry suppliers were also said to use them.

Taxes and tariffs

17 Table 3 shows that the proportion of national income collected in taxation is similar in all four European countries, although the US proportion is lower. The value added tax (VAT)* system is in operation in West Germany and Holland, and is being introduced in Italy. This gives an advantage to their exporters, but the extent of this advantage is difficult to quantify, since it depends on the various effects which the tax has on internal price levels. The advantage is thought to be small.

---

* Value Added Tax is charged at each stage of production on the next value, or value added (gross output minus the cost of all materials and semi-finished products used). Tax paid during production is rebated when the product is exported.

Table 3 Taxation as a percentage of GNP/1967

Type of tax	*UK*	*Holland*	*Italy*	*West Germany*	*USA*
Taxes on income					
households	11.8	12.5	5.8	9.5	10.9
corporations	3.0	2.8	2.0	2.5	4.5
Taxes on expenditure	17.4	11.9	14.9	16.9	9.7
Social security contributions					
employees	2.7	3.5	12.1	5.8	2.8
employers	2.8	10.5		6.2	2.9
Total	37.7	41.2	34.8	40.9	30.8

Source: Economic Trends, June 1969.

18 Continental printers pay less than we do for some grades of paper and are in a more favourable position in respect of imported machinery. Table 4 shows typical rates of duty. All three continental countries benefit on duty free machinery purchases within the Common Market. British printers pay more duty on imported machinery and are also adversely affected by the Import Deposit Scheme, which applies to imports of machinery and paper, but not to most imports of foreign printed matter.

Table 4 Typical rates of duty on imported paper and printing equipment/1969/ per cent

	UK	*European Economic Community*	*USA*
Newsprint	nil	7*	nil
Printings	16	14.4	0.13 ¢ per lb then 3 per cent
Coated papers	16	13.8	1.6 ¢ per lb then 3.5 per cent
Printing presses	10	6.4 8.8 9.6	10
Other equipment (plates, cylinders, etc)	11	4 7.2 8.8 11.2	nil 8 32

* Exemption within the limit of an annual quota of 625,000 metric tons.

Source: Board of Trade.

Notes: 1 UK imports from the Commonwealth and EFTA are duty free.
2 Trade within the EEC in these commodities is duty free.
3 US tariffs for imports from the communist bloc are much higher than those shown.
4 EEC rates for printing presses and other equipment vary according to type of equipment.

19 In West Germany tax concessions are made to employees and employers to encourage greater utilisation of plant by shift-working. For employees, the shift premium is not subject to income tax provided that the wage without the premium does not exceed 24,000DM (£2,700). For employers, shift-working brings the opportunity for a faster rate of depreciation for tax purposes.

Postage costs

20 Postage costs may affect the placing of a print order where, for example, brochures are mailed individually from the country of printing. In the countries we visited there seem at present to be no major differences in postal rates. That between the UK and Holland has largely disappeared following devaluation and an increase in Dutch rates. Reduced rates apply within the Common Market for some items, but the effect on the total competitive position is marginal.

Social environment

Social factors

21 The social environments in the countries visited are different from that in the UK. In some large firms on the Continent we found more authoritarianism, and in the USA more individualism, than most of us would be prepared to accept. Yet both environments can lead, in different ways, to an impressive degree of commitment amongst all employees to business success.

22 In many overseas firms we met a noticeable loyalty amongst rank and file workers to the firm and a real pride in its prosperity. Managements seem to have succeeded in creating a team spirit which is reflected in attitudes towards work and the day-to-day problems which inevitably arise. Perhaps one of the reasons for this on the Continent is that they have all, management and workers, striven together during the last twenty years to build up their firms, often in new premises, from the devastation of war. But we found the same spirit in the USA, where they had not suffered the same setbacks.

Approaches to common industry problems

23 In one sense, it was heartening to find that other countries face many of the problems which we are facing. Printing is an old industry with a fine craft tradition, based in the past on individual skill and responsibility in small production units. The growth of modern printing technology and large scale production, however, are exposing many of the industry's long established practices to new stresses and strains. While some British firms and organisations are coping with the challenge, nearly all the American and continental managers and unionists we met seemed better prepared for the future and more ready to accept changing patterns of production than we are.

24 Many continental firms appear to have learned a lot from other industries about modern techniques of management. This is also very evident in the USA, where there is a growing realisation that, although printing is a unique industry, it can benefit from ideas developed elsewhere. In the UK, there is a greater reluctance to recruit managers and adapt ideas from other industries.

Changing pattern of industry structure

Present position

25 The structure of the commercial printing industries in all countries we visited is not unlike that in the UK (see appendix 5). The majority of firms are still family businesses, even some of the largest, and only a few have become public companies. The development of large national and international groupings has as yet hardly touched the printing industry, except indirectly through publishing connections.

Printer/publisher integration

26 Integration of printing and publishing seems to be common amongst the larger continental firms. In addition to the opportunities this gives for market expansion through control of a publishing outlet, an assured volume of print orders undoubtedly facilitates product and production planning, and helps to achieve optimal utilisation of resources. The close liaison between publisher and printer also helps with standardisation in such areas as copy preparation, transparencies, and paper quality and sizes. Some printer/publishers cover their overheads on captive work and compete for outside orders to fill their capacity on the basis of variable costs. To some extent they also stockpile their own work to free capacity for seasonal work such as mail order and travel catalogues, thus ensuring a more even spread of work throughout the year.

27 The merits of printer/publisher integration do not lend themselves to generalisations, but we found that most overseas printer/publishers make the two activities separately accountable so that the profit contribution of each is known to management.

Use of trade houses

28 Large gravure printers usually have their own facilities for graphic reproduction. The extent to which larger litho printers do their own reproduction work, however, varies considerably. Most firms use trade houses at peak demand periods as it would be uneconomic to provide extra reproduction facilities which are used only occasionally. Some firms also have a sizeable proportion of their basic workload done outside, whilst others aim to cover all their normal reproduction requirements within their own plants.

29 On the Continent there are a number of trade houses catering for the production of colour separation film positives and negatives for litho and gravure printing. On the letterpress side, the production of photoengravings is almost always done in trade houses, particularly in the USA and the UK. Some continental printers do a large proportion of their own graphic reproduction in order to have control over quality and job scheduling. For the buyer of large print items, such as mail order catalogues, there may be advantages in this situation, because he can go to a large printer who will organise the whole job from the transparency stage. If the buyer has to go to several trade houses and

printers, he has a more difficult task to co-ordinate the work, and for the printer there are additional problems in quality control and scheduling.

30 Experience in the USA is that a considerable amount of work is put out to houses specialising in typesetting and origination, thus enabling management to concentrate their know-how and capital on printing. Such specialisation leads to satisfactory results only where the trade houses provide a competent and reliable service. The ability of such specialist houses to consolidate their position in the UK printing industry will depend mainly on how far they can provide a high standard of service in the growth market for litho origination.

Pressures for change

31 In various discussions we found considerable agreement about the powerful pressures operating to alter the structure of the printing industries in Western Europe and the USA in the next decade or so. Such pressures are:

- *a* the low profitability of most firms in general printing;
- *b* the large demands for investment capital arising from rapid technical change;
- *c* the growth of the international market for print, and
- *d* competition from other methods of communication.

32 The firms which are going to compete successfully in world markets for books, periodicals and long run commercial work in ten years' time will need to invest heavily. Few independent printers are generating sufficient cash flow to finance this level of investment and they offer too low a return on capital to raise money easily in the open market. More firms will be forced to join in wider groupings, either with other printers and publishers or with firms in other industries, in order to obtain greater financial security and access to capital on better terms. An American trade union leader confirmed that his union's plans were based on the assumption that market forces would inevitably lead to the creation of bigger and more powerful business groupings.

33 Another likely development is the formation of international groups, especially where publishing is also involved. The marketing of books and part works* already depends to a considerable extent on international syndication, and it is unlikely that the larger groups will long be satisfied with ad hoc arrangements. Instead they will want to be able to plan the development of their business on an international scale with the assurance which only complete physical control can give.

---

* publications issued in instalments.

Forward planning

Corporate objectives

34 While only a few of the firms we visited had established formal corporate planning departments, the majority overseas have clear objectives in terms of business strategy. Their senior executives have decided exactly what they wish to achieve and how they propose to achieve it, and some are working to plans which cover main aspects of policy over the next five to ten years. In the USA, for example, Kable is working to long term profit targets. Editors Press, a relatively small firm, aims at full utilisation, working from sales, equipment, space and staff forecasts.

35 Mondadori over the last three years have built up a sophisticated forward planning function under a main board director. After an initial settling down period, it is now regarded as an integral part of management control. One specific instance was quoted where forward planning had indicated the danger of continuing existing policies on book subscription sales. These policies were modified when a five year projection of current trends forecast that liquid cash requirements would involve raising outside finance to an extent unacceptable to the owner.

Building for the future

36 In another section, we give examples of the way in which certain firms are approaching prospective new markets. We found similar examples of forward thinking in other fields, and were impressed by the way in which some of our main competitors are actively planning to meet the demands of tomorrow as well as today. For example, Mohn is planning ten years ahead. Plans include expansion into overseas markets, the setting up of new production facilities and diversification. Burda's time span is five years. He plans to obtain an increasing share of overseas markets and is investing accordingly.

37 These and several other firms believe that the environment in which they operate can be changed by their own actions. This attitude is quite different from the idea, which many printers appear to hold, that because they supply a service, they can only wait passively on events.

Marketing

Marketing's role

38 Most of the overseas firms we visited place great emphasis on marketing, and regard it as an essential part of their corporate strategy. This does not mean that they all have formal marketing departments nor that they do market research in the strictest sense. Rather it is a comment on their approach to business. They have abandoned the notion that all business is good business and are concentrating on obtaining the orders which will enable them to meet their long term objectives in terms of growth and profitability.

Product and customer specialisation

39 The most important move amongst the printers we visited is towards product specialisation and away from the idea of selling a general printing service largely on price. Some of the most impressive firms have concentrated on only one or two products with market potential, where use of the most appropriate plant and standard procedures can have a significant impact on costs and profitability.

40 An outstanding example of specialisation is Mohn in West Germany, where the plant is designed for the mass production of case bound books of certain sizes. In the USA, an example of a firm which has changed its whole operation as a result of a reappraisal of its markets is Fawcett-Haynes. Traditionally it was a periodical and commercial printing house and produced no books. Five years after the reappraisal, books accounted for 80 per cent of its output.

41 Another interesting example of specialisation is Davis Delaney. Situated in the heart of New York, they cannot hope to compete on price because of higher overheads and labour costs. They have therefore specialised in work for advertising agencies, where price is less important than quality, speed and service. If necessary, they can offer proofs within two hours of receiving a transparency and are able to charge accordingly.

42 Specialisation involves the firm in an assessment of which lines it is best equipped to make, and which have an adequate profit margin and market potential. To do this the firm must have a suitable information system, from which long term plans can be made involving selective investment and selective selling. The remuneration of salesmen plays an important part in this policy. Less emphasis on commission, with the payment of a good salary and expenses, is widely regarded as being a more effective means of securing the right attitude on the part of salesmen to the needs of a firm.

43 Since the publication of the McKinsey report* in the USA, pin-pointing a selective marketing strategy as the main avenue for profit improvement in printing, I S Berlin of Chicago has introduced a regular system of sales and

---

* *Targeting the Printer's Marketing Approach for Higher Profits,* Printing Industries of America, 1966.

profit analyses to identify high profit and low profit sales. From these analyses they have developed a selling strategy to increase the share of more profitable business. Another American firm, Editors Press, does regular analyses of the profitability of customer accounts, so that sales effort is directed to profits rather than volume.

Price, quality, delivery and service

44 In printing, as in other industries, customers want high quality, prompt delivery and good service at low prices. Reconciling these demands is difficult, because quality, delivery and service cost money: our experience confirms that firms must decide, as part of their marketing strategy, whether to compete on price or to offer exceptional quality, rapid delivery or specialist customer advisory services for which premium prices can be charged.

45 Many printers pride themselves on undertaking any type of work offered to them. By contrast most of the printers we visited concentrate on what they do best. For example, one Dutch firm does not aim to produce high quality, but specialises in serving publishers of cheap periodicals, to whom low cost and prompt delivery are all important. Another Dutch firm seeks to command a premium price by offering a 'plus factor' in terms of special attention to customers' needs. A German firm, on the other hand, aims at a level of quality for long runs which will make it immune to price competition with quality conscious customers such as mail order houses. The managing director said: 'We have no fear of competition while we can maintain quality and delivery.'

46 Common criticisms of British printers are that promised delivery is too slow and delivery dates are frequently not met. Davis Delaney in New York offers and maintains exceptionally rapid delivery. No other printer we visited in the USA offered such speedy delivery, but all stressed that promised delivery dates should be met. Kable typifies the approach we found, which is that late delivery may cause expensive dislocation of a customer's business and more than anything else is likely to cause him to take his custom elsewhere.

47 Many of the printers we visited regard their job as going much further than the putting of ink on paper. To them, printing implies a whole range of services designed to enable customers to make the most of their print purchases. Mohn, for example, emphasises the advantages to both customer and printer of consultations about a proposed job at a very early stage. The printer's advice during the design period can save time and money when the job comes to be printed. It also develops a closer relationship between customer and printer, and makes the printer less vulnerable to competition.

48 One particular example of customer service we found concerns a firm printing a mail order catalogue. On his own initiative the printer experimented with thinner papers, found one adequate for the job and used it to make up a dummy. Because of the lighter weight the printer was able to tell the customer that a switch to the thinner paper would save him about £100,000 in postage. It is this kind of service which builds up customer loyalty.

Export selling

49 We were impressed by the care taken in many overseas firms in their export selling and in backing sales with a system to ensure that finished jobs are to customer requirements. Special attention is given to the selection and training

of export representatives, whether or not they are natives of the country in which they are selling. Not only can they speak the customer's language fluently, but some are also given training in the customs and traditions of the customer's country so that they have a real understanding and appreciation of what is needed to inspire confidence. Several of these firms also make sure that their overseas customers know which executive at the plant to contact by telephone or mail about their orders.

50 We note these points as evidence of the thorough way in which overseas firms solicit work and make sure that the customer has peace-of-mind and confidence during the time the work is going through, as well as receiving a good job delivered on time. There are disadvantages in placing work abroad, and print buyers have to be assured that the advantages will outweigh the disadvantages. We found several overseas firms which are able to give these assurances.

Belief in market expansion

51 Belief in expansion of the market is the common philosophy of many top managers abroad. On the Continent in particular, we saw several examples of demand creation where printers, dissatisfied with the profitability of orders obtained in the traditional manner, have gone out to open up new business. An example of this is the development of new publications which can be marketed internationally at a premium.

52 The Italian firm of Agostini has been prominent in the growing world market for part works, subsequently republished in encyclopaedia form. Their view is that the firm which offers only printing is very vulnerable as it is competing with numerous other firms with the same capability. Agostini is therefore seeking greater control of the market by offering unique products which, management believes, have better growth and profit potential.

53 Another method of expanding the market is to sell internationally. The Dutch industry in particular is geared to a much larger market than Holland alone can provide. In Italy and West Germany too, certain firms are exploiting the international market. Their scale of investment indicates that they intend to capture an increasing share of this market. Some firms are also prepared to set up subsidiaries in other countries as an aid to their penetration of new markets.

54 As an integrated printer/publisher, Mohn has used its book clubs as the means to rapid growth. Because the market in West Germany for book clubs is limited, however, it is increasingly looking to other markets. It has established clubs in Austria, Spain, Switzerland and Holland, and is producing in satellite plants in some of these countries.

55 Mohn also runs a gramophone record club, manufacturing records and printing record sleeves. This shows how it is possible to diversify into other areas using the skills learnt in printing and publishing. On the commercial printing side, Mohn developed an airline magazine, which they suggested in the first place to Air France. This is a good example of demand creation. Because it involves selling ideas as well as print, it is another way of avoiding price competition.

UK attitudes to market expansion

56 Some British printers are responsive to the growth of the international market for printing and ancillary activities such as typesetting. These firms are gearing themselves to recapture orders currently placed abroad and to win new orders in areas which have previously received little attention from British printers. Opportunities undoubtedly exist on the Continent and in the USA, particularly for those who specialise. Because of the lack of buoyancy in the UK economy, British printers depend for their own growth on a more positive attitude to demand creation in the home market and on obtaining a larger share of the international market.

Use of management information

Control systems

57 Having set profitability and production targets, managements need a system of control as an aid to meeting them. In most of the overseas firms we visited, managements take care to provide themselves with information systems which monitor detailed costs and times for each stage of production, enabling them to check at any time how each job is progressing through the plant.

58 Some of these systems of costing and cost control tend to be over-elaborate. Nevertheless they keep both management and workpeople alive to the need for their firms to be successful and to make healthy profits. Trade union officials were also very alive to the need for a prosperous industry. Such attitudes lead to acceptance of the importance of cost control, so that management and workpeople co-operate to bring about cost reductions. There was no evidence that the overseas firms visited have better methods, systems or office equipment than are available to British printers, but there appears to be a wider and more intelligent use of available means to improve efficiency and a refreshing readiness to consider new or different approaches to overcoming problems.

Costing methods

59 Although standards of performance in terms of rate of output are in common use abroad, we encountered only one firm, in the USA, which claimed to be using standard costing. In most of the overseas firms visited, historical job costing is used. Cost rates for control purposes are generally based on past figures of cost and past levels of utilisation, and not on target figures or what is expected in the budget period. For pricing, however, different cost rates are often used. Assembly of costs for each job follows the normal pattern, and pricing decisions, although influenced by total costs, are not generally related directly to them.

60 Job time recording ranges from manual methods, even in some large firms, to the use of highly sophisticated systems such as data collection terminals in departments (through which operatives feed information directly to computers) and recording units on individual machines, which enable delays or stoppages to be traced to their source. Generally, however, some form of mechanical recording of job times is employed, smaller firms included, and employee co-operation in the use of such equipment was invariably being obtained. We were impressed by the extensive use made of the information recorded, particularly in the analysis of down-time and in compiling production records. Where computers are used, regular up-to-the-minute data enables firms to achieve effective control of all aspects of production.

Pricing policies

61 Although several firms spoke of a flexible pricing policy, this meant only that they occasionally adjust their normal profit margin. No firm visited was

using marginal costing. We found, in fact, that successful firms abroad are reluctant to price work at levels below those which yield an adequate profit margin. A study by management consultants in the USA has shown that almost 90 per cent of high profit printing firms are prepared to lose orders rather than accept work at prices not yielding a satisfactory margin. One of the American firms visited spoke of an active policy of shedding unprofitable accounts, with profitable work being 'their main interest'.

62 We came across only two examples of marginal pricing, that is, a quoted price which did not cover overheads. The first concerned a German firm which cut its price on a prestige export job in the belief that it would lead to future orders on which profits would be made. The other example concerned an American firm on shift working which had cut its price on a long run order to maintain full machine utilisation at a period of slack demand. In each case the firm had adopted this policy only after fully considering the dangers inherent in not covering full cost, such as the effect on the market and possible side effects on the prices of other jobs.

Productivity improvement

63 The close attention paid by firms abroad to the prompt and regular collection of production details is equally directed towards better use of men and machines. This, coupled with similar attention to the rates of output in relation to pre-set standards, immediate investigation of unsatisfactory performance, and strict control of budgeted expenditure, results in economic unit costs.

64 Although production standards are set and are widely used in achieving high output, it was often said by management in overseas firms visited that they place a great deal of reliance on good overseers to improve productivity. In one American firm it is the practice to move a man responsible for poor output to other machines or to give him a different crew. In this way efforts are made to help individuals to improve performance, but if results remain unsatisfactory, the man will lose his position.

65 In the UK, there is a common belief that workpeople are not interested in learning about the significance of costs and profitability. Our experience abroad, however, was that where employees are informed about costs and profits, there is a greater sense of purpose and a more positive attitude towards cost reduction and elimination of production delays.

Financial and investment policies

Attitudes to investment

66 In the overseas firms we visited, we saw the advantages of evaluating new pieces of equipment, not only on their individual merits, but also as part of the economics of the plant as a whole. The British industry has invested in equipment which is as up-to-date as any we saw abroad, although not on such a prolific scale. In many cases, however, investment represents the grafting of a modern machine onto a stock of old-fashioned capital. In several overseas firms, the investment in new equipment is the occasion for a complete reappraisal of the plant. Their managements show a greater preparedness to scrap old equipment, to pull down unsuitable buildings, and to start afresh.

67 Apart from the direct benefits on efficiency which can come from modern plant layout, the complete break from old-fashioned surroundings provides an opportunity to discard outmoded working habits and the institutional arrangements which go with them. In some cases where new equipment has been introduced in British plants, the best use is not made of it. As a result, some British managements are inhibited from investing in new plant by the fear of difficulties in solving shift-working, manning, rating and demarcation problems.

Evaluation of investment projects

68 Advanced methods of appraising capital expenditure have not yet been adopted in the printing industry, either in the UK or in the other countries visited. Generally the volume of work available (or expected volume), technical factors, and arbitrary assessment of potential return on capital are the aspects considered before purchase. In one large American firm an uncomplicated attitude to plant and machinery acquisition was expressed in the words 'first have the customer then buy the plant'. Only one or two of the firms visited abroad use the pay-back method of capital expenditure appraisal (estimating the time taken for income to cover original outlay). In no case was the discounted cash flow method being used, although several firms spoke of interest in this technique. The highest return looked for from new capital investment was 20 per cent in one American firm and one continental firm. A return of between 10 and 15 per cent was mentioned by other firms overseas.

Plant write-off

69 Considerable variation exists in the period over which the capital costs of plant and machinery are written off in the financial accounts of the overseas firms visited. The most common period is around 10 years, with 20 years in one American firm being the longest time encountered and 5½ years in an Italian firm the shortest. Electronic equipment is written off over a shorter period, as in the UK.

70 Practice varies with regard to depreciation rates for machinery on shift working. We encountered instances where, although double shift working

operates, the rates for single shift working are used without adjustment, and others where higher depreciation rates are used, based on the assumption of double shift operation throughout. Mostly, however, practice is similar to that followed in the UK, where basic depreciation rates are increased successively for double and treble shift working.

71 The write-off period for tax purposes also varies from country to country, and even in the same country. For example, in West Germany, firms may negotiate for a shorter period of write-off than the standard 10 years. Certain tax incentives apply in overseas countries as they do in the UK. In the USA, there is an 'investment credit' in the first year and an accelerated rate of write-off allowable over several years. Because of detailed variations, the effects of the different systems are difficult to compare, but it does not appear to us that investment incentives give any substantial advantage to our competitors in the countries visited.

Profitability

72 Comparison of profitability between firms is difficult because of variations in methods of accounting and valuation of assets. Nevertheless information made available to us from national and international interfirm comparison schemes suggests that, for general printing, output per head in value terms is considerably higher overseas than in the UK. Added value per employee ranged from £5,260 in the USA to £1,700 in the UK. The comparable figure for Holland is £2,550 and for West Germany £2,330. There is, however, no substantial difference between the overall level of profitability in general commercial printing firms in the UK and in the countries visited. In each country concern is widely expressed about the relatively poor overall level of general printing profits which, related to total assets*, represent an average of around 7 per cent before tax.

73 Information about profitability in the individual firms visited overseas was not always available. Such details as were obtained often indicated a relatively low level of profit and certainly did not bear out our expectations of good results, which arose from having seen efficiently organised production and administration in these firms. Many overseas firms, however, are implementing ambitious investment programmes which, while reducing current profitability, will put them in a strong competitive position for the future. These high investment levels are reflected in the high rate of growth in the post war years of certain continental firms. Such evidence as is available confirms that we are still investing less in relation to turnover and number of employees than printers in the other countries visited.

---

* Fixed assets have been taken at current values.

Management

Quality of management

74 The quality of management abroad, both in technical skill and general managerial proficiency, is almost everywhere impressive in comparison with some managements in the UK. This is particularly noticeable at middle management levels. Managements appear to have won the confidence and respect of employees and to have the ability, not only to delegate responsibility, but also to infect others with their own enthusiasm.

75 We found it difficult to identify the reasons for this as the sources of recruitment and the methods of training of management do not seem to be substantially different from those in the UK. Some managers have gained their experience in the printing industry and some have come in from other industries, such as engineering, or from the professions, there being perhaps a rather greater non-printing element than is present in British firms. There are good grounds for a deeper study of comparative methods of selection and training for management and of management structures than we had the opportunity to make.

Management control

76 In some large gravure and web offset firms, British management takes a pessimistic view of its ability to control events and in the past has often shown a disinclination to do so. In particular, it has to contend with a dual system of authority which has grown up in many key British plants, where the loyalties of the workers go first to the chapel, and through it to the union, and only secondly to the firm. In the overseas firms we visited, except in Holland, trade union organisation is not complete and the problem does not arise. It is only important where it inhibits management and workers from pursuing the same ends.

77 In a few large houses in the UK, the FOCs have been accorded by the firm some of the functions of line management as the first channel of authority on the shop floor, and this may create difficulties. One prominent American trade union leader expressed the view that there is a serious management gap in the UK, in the sense that management have not succeeded in establishing an identity of purpose, in which the word 'profit' figures, with men on the shop floor.

78 Management attitudes abroad vary from the frankly authoritarian to the benevolent, but in all cases there is firmness of control, combined with the ability to inculcate a general spirit of co-operation. Within each firm, management has maintained and exercises the right to manage, and does so with varying degrees of consultation with shop floor representatives.

Management/employee relationships

Communications

79 Relations between managements and workpeople in all the overseas firms visited appeared to be very good. This impression was confirmed in our conversations with representatives of employers' organisations and trade unions.

80 These good relationships are partly the result of the emphasis placed on effective two-way communication between managements and workpeople. The methods used are various, and include house journals and regular meetings addressed by management to explain how the firm is faring. One example of good communications is provided by Kable, which makes its organisation chart with job titles and photographs of executives, including foremen, available to all employees. When the firm lost the order for the American edition of 'Family Circle', management immediately called a works meeting to explain the position and outline plans to get alternative work.

81 In Holland, there is a statutory obligation on firms above a certain size to have worker consultation machinery. At Enschede, this was said to play a valuable part in maintaining high productivity. Whatever methods of consultation were used, however, it was everywhere stressed that the first and most important channel of communication was line management and must remain so.

Interdependence

82 In one American firm we were shown a copy of the Declaration of Interdependence, which forms the basis of their management/employee relationships. This is reproduced as appendix 6.

83 We found similar relationships in many of the continental firms we visited. Unions and their members accept that maximum productivity and efficiency of working are essential to their interests as well as to those of management, shareholders and the nation as a whole. There is also general acceptance that negotiated conditions should be observed in the spirit as well as in the letter of the agreement. As a result, stoppages, or other industrial action which hampers production, seem to be unusual.

84 It does appear that the industry in the UK would benefit if on both sides greater attention was given to promoting this sense of involvement by all suitable methods, including the improvement of communications and the dissemination of information.

Union and employer organisation

Degree of organisation

85 In Holland, 100 per cent organisation of employers and employees is required by law. There are three unions, membership of which is determined on a politico-religious rather than on an occupational basis. Membership of the three employer associations is determined by main printing process.

86 In Italy, organisation is not compulsory and is relatively undeveloped. Figures of 30 to 40 per cent were mentioned for production employees and rather higher figures for employers. Membership of the three main unions is again determined on a politico-religious basis. There is one employer association covering general printing and bookbinding.

87 In West Germany, organisation is not compulsory and varies widely. Mohn is non-union. At Burda organisation was said to be about 10 per cent for workpeople. In others it was higher. Of the firms visited three were members of the employer association, and one, Mohn, was not. There is one industry union and one employer association.

88 In the USA, organisation of employers is not compulsory. Union organisation by departments within the firm is compulsory only where a majority of employees in a department agree to it in a ballot conducted by a government official. There are probably more open shops than union shops, but rather more union employees than non-union. The position varies from city to city, with a large percentage of union shops in the major centres. A majority of large and medium sized firms belong to employer associations. Unions were originally occupational, but changing techniques have led to increasing competition for members in all parts of the industry.

89 In the UK, printing employees are highly organised and nearly 100 per cent of production workers are trade union members. Organisation is largely occupational. Most large and medium sized firms belong to employer organisations federated in the BFMP. Union and employer organisation in the countries visited is summarised in appendix 7.

Negotiations and problems of multiple organisation

90 Multiple organisation in Holland and Italy does not seem to create difficulty in national negotiations, as the organisations customarily come together for this purpose and their agreements are, in effect, joint ones. The absence of occupational divisions between unions means that there are no demarcation problems arising from inter-union boundaries in either of these countries or, of course, in West Germany.

91 Another feature of both union and employer organisations in Holland, Italy and West Germany is that their industrial relations role is almost entirely confined to negotiating national contracts on wages and conditions. Local problems within each firm seem to be dealt with mainly by management and

worker representatives within the firm. This system may not be entirely suitable to the British set-up, but it may well play a part in creating within the firms the team spirit to which we referred earlier.

92 In the USA, because of the size of the country, there are no national negotiations. Agreements with individual unions are made on an area, or local basis, or, in the case of very large firms, on either a house or a group basis. There is a high degree of co-ordination on the union side to ensure that national objectives are met in these agreements, although they are negotiated locally. All agreements have to be approved by the union headquarters.

93 Inter-union rivalries are strong in the USA, but once a department is organised all employees in it are represented by one union. Problems have arisen, however, where technical innovation has blurred the boundaries between departments.

94 The BFMP negotiates on behalf of employers in England and Wales. At the moment wage negotiations are conducted with each union separately. The agreements covering hours, holidays and apprentices' wages are negotiated jointly through the PKTF. Over recent years, the number of printing unions has been considerably reduced, and the workpeople covered by the report are now catered for by only four unions, but our experience abroad reinforces the arguments for further amalgamations and for the elimination of internal demarcation within unions. Occupational demarcations, however, apply within unions both here and abroad, and industrial unions do not in themselves eliminate demarcation questions.

Union staffing and services

95 The tendency in large British plants for separate bargains to be made supplementary to the national agreement means that heavier responsibilities fall on branch officers and FOCs. This development requires that the latter should be properly trained, and suggests that more full-time union officers will be required.

96 We were impressed, especially in the USA, by the way the printing trade unions equip themselves with specialist staff to examine and report on the economic and financial factors which affect the fortunes of the industry, and therefore of their members. Only one British union has a full time research officer. By contrast, one smaller American union employs a team of seven economists and accountants, who can meet management on their own ground. The union uses these people to provide them with information and forecasts essential to proper negotiations. It also uses these experts to provide a picture of future trends in the industry, so that schemes for retraining and early retirement pensions can be planned well in advance.

Wages and conditions

Wages

97 Wage movements in continental countries in recent years have removed most of the cost disadvantages from which the British printing industry formerly suffered in terms of higher hourly wages.

98 In English agreements there is a much wider system of agreed machine extras than in comparable continental contracts. The 'bomilo' system in Holland requires firms to pay merit money of between 11 and 21 per cent of the total basic wage bill within each department, the distribution to individuals being determined by management according to merit. In two German firms it was said that earnings ranged from 20 to 70 per cent above tariff. Actual earnings in the continental firms visited appear to be similar to comparable firms in the UK.

99 In making labour cost comparisons, the important criterion is the hourly cost to the employer of wages, including all extras, and social security contributions. The statement about earnings in paragraph 98 relates to a few key British firms which pay well above the average. Comparisons of hourly wage costs in tables 5 and 6 give an overall industry picture and show that the average amount paid by British firms for each hour of work in the occupations listed is lower than in the other countries.

100 We do not have comparable wage figures for the USA, but examples shown to us were roughly 2½ times the British level.

Weekly hours, holidays and overtime

101 The British pattern of a 40 hour week, with three weeks annual leave and six statutory holidays, provides for approximately 1,920 hours of normal working in the year. In the USA, weekly hours vary between 35 and 37. Annual leave is usually three or four weeks, depending on length of service, with an additional seven recognised holidays.

102 The corresponding figures for Holland, Italy and West Germany are affected by variations in holiday entitlement related to length of service. Taking an employee with five years' service in the firm, comparisons are approximately:

	Basic weekly hours	*Total basic hours in year*
UK	40	1,920
Holland	43¾	2,072
Italy	43	2,015
West Germany	40	1,888
USA	36	1,720

103 On the basis of the normal working week, the annual hours available in the UK are slightly more than in West Germany and less than in Holland and Italy. In comparison with Holland and Italy, therefore, overtime rates have to be paid on a greater number of hours for the same working week. In fact

Table 5 Examples of hourly cost of employing certain operatives/highest wage areas by country/1968/Swiss francs

Country	*Hand compositor*		*Letterpress machine minder*		*Camera operator*		*Single colour offset minder*		*Two colour offset minder*		*Male bookbinder*		*Female bookbinder*	
	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Italy	7.20	3.06	7.20	3.06	9.45	3.87	7.93	3.32	8.46	3.51	7.43	3.15	5.46	2.44
West Germany	7.10	1.07	7.28	1.09	9.44	1.42	7.54	1.13	8.28	1.24	6.90	1.04	5.79	0.87
Holland	6.35	1.60	6.31	1.58							5.88	1.46	5.15	1.23
Great Britain	6.25	0.36	6.22	0.36	9.15	0.37	7.06	0.36	8.95	0.37	6.05	0.36	3.73	0.25

W hourly cost of wages and holidays.
S hourly cost of employer's share of social insurance.
Source: International Bureau of the Federations of Master Printers.

Table 6 Examples of hourly cost of employing certain operatives/lowest wage areas by country/1968/Swiss francs

Country	*Hand compositor*		*Letterpress machine minder*		*Camera operator*		*Single colour offset minder*		*Two colour offset minder*		*Male bookbinder*		*Female bookbinder*	
	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Italy	5.90	2.60	5.90	2.60	7.73	3.25	6.51	2.82	6.93	2.97	6.09	2.67	4.45	2.08
West Germany	7.10	1.07	7.28	1.09	9.44	1.42	7.54	1.13	8.28	1.24	6.90	1.04	5.79	0.87
Holland	6.35	1.60	6.31	1.58							5.88	1.46	5.15	1.23
Great Britain	5.50	0.36	5.61	0.36	8.70	0.37	6.46	0.36	7.35	0.37	5.76	0.36	3.60	0.23

W hourly cost of wages and holidays.
S hourly cost of employer's share of social insurance.
Source: International Bureau of the Federations of Master Printers.

continental firms appear to rely less than our own on substantial overtime, possibly because of the greater use, in the firms visited, of shift working. This is confirmed by ILO figures, which show that our operatives work longer hours than operatives in any of the other countries except Holland.

104 Hours worked have to be related to other factors such as machine manning and rate of output if a realistic comparison of productivity is to be obtained.

105 In some firms a premium payment is made for annual holidays. Overtime premiums, as distinct from shift premiums, also vary in a way which makes valid comparisons difficult, but they are probably not a significant factor in competition, and are in any case included in the figures for hourly wage cost in tables 5 and 6.

Shift systems and premiums

106 In the firms visited shift working is general, particularly in machine departments, and in many cases there is 'round the clock' working. It is not easy to make direct comparisons of shift premiums, since some agreements provide for flat rate additional payments, as in the UK, and others provide for varying hours. The national contract in Italy, for example, provides for a uniform premium on all shifts, the operatives' main advantage being a 36 hour week for the night shift compared with 43 hour weeks for day shifts. Moreover several house agreements provide for higher payments than those agreed nationally, and different rates apply to different departments. The figures in table 7 illustrate the broad position in firms in the UK and on the Continent at the time we visited them.

107 In most of the firms we visited in the USA, shift working covering 24 hours is an accepted way of life, especially in the machine room. In general, shift premiums are about 7 or 8 per cent over day rates for a week of about 36¼ hours.

Table 7 Examples of shift working/1968

	Example number and location	*Weekly hours first/second/night*	*First shift premium per cent*	*Second shift premium per cent*	*Night shift premium per cent*
Double day shift working	1 UK	40	33	33	
	2 UK	40	20	20	
	3 Continent	42½	25	25	
	4 Continent	41½	25	35	
	5 Continent	42½	10	10	
	6 Continent	41/43	7	10	
	7 Continent	42½	15	15	
Treble shift working	1 UK	40/40/36	33	33	50
	2 UK	40	20	20	33
	3 UK	38¾	33	33	50
	4 UK*	40/30/36	0	33	50
		40/36/36	0	33	50
	5 Continent	42½/42½/39¼	25	25	48
	6 Continent	41¼	32½	32½	32½
	7 Continent	42½	32	32	32
	8 Continent	41/41/36	7	7	7
	9 Continent	42½	0	25	45

* Shift system varies according to department.

108 On the Continent, the position appears to vary widely from firm to firm, but double day shift premiums average out at approximately the English provincial figures, although for rather more hours worked. As there was no national agreement for England and Wales for treble shift work at the time of our visits, comparison was difficult, and there seems to be ground for examining the need to provide more adequately for treble shift work, which can lead to more economic production. It is also accepted, in at least some of the continental firms, that during shift meal-breaks machines continue to run with reduced crews.

109 In the countries visited, shift working appears to be accepted more readily than in the UK as the normal system of work. Except in Holland, it is made economically attractive to the employer by a moderate hourly cost and, at least in West Germany, by certain tax advantages both for employers and for employees.* In order to achieve fuller utilisation of expensive capital equipment, consideration might well be given in the UK to the advantage of concentrating more on shift working and less on substantial overtime.

Work study and incentive schemes

110 Neither work study nor incentive schemes were found to be in frequent use in continental firms. Neither is common in Italy, at least on a systematic basis. In West Germany, Mohn and Belser link work study with incentive payments in some departments. In Holland, De Boer practise work study, but do not link it to payments. In none of the continental countries was the emphasis on these matters as strong as might have been expected, although most firms in the USA use work study and some have incentive schemes for line managers.

Fringe benefits

111 Pension schemes, often on a transferable basis, are a common feature of the industry in all three continental countries and in the USA. In Italy, the scheme is contributory and provides pension entitlement after 15 years' service. The pension can be taken by men at 60 and by women at 55, but there is an option to continue until 65 for men, with a 40 per cent increase in benefit, or until 60 for women, with a 22 per cent increase. One West German firm said that full benefit for men, including that from the state scheme, could amount to 70 per cent of wages. In the USA schemes are run jointly by trustees of employers and unions.

112 Sick pay under national state schemes on the Continent is also generous. In Holland, it was stated at one firm that for the first week of absence a worker enjoyed full pay, and for the next 12 months 80 per cent wages, but it was also said that, despite regular medical checks, there is considerable abuse of the system.

113 Redundancy payments in the continental countries are regulated by law, but little reference was made to them during discussion, perhaps because both managements and employees in all three countries envisage an expanding industry, with the emphasis on productivity and growth and not on contraction.

---

* see paragraphs 19 and 71.

Deployment of labour

Machine manning

114 The crewing of smaller machines, including most flat-bed letterpress and sheet-fed offset, is similar to that in the UK. Larger and more specialised machines are covered in some cases by national agreement, and in other cases the manning is decided by management. At one German firm it was stated that their manning was in many cases less than that specified in the national contract, to which the firm was not party. The size of crew appeared usually to be that required to operate the press economically and efficiently, and this is assisted in the overseas countries by the absence of restrictions on the duties which the various members of the crew perform, providing they have the capability.

115 Each man is able to use the skill and experience he has obtained, with the incentive that he can progress on ability to the more responsible jobs. Machine assistants can, for example, after experience, in some cases accompanied by examination, progress to the same work as apprenticed craftsmen. It is arguable whether it is wise to treat apprentices and upgraded men differently in regard to examination, but the whole question seems deserving of further study in the UK.

116 Illustrations of manning in relation to output are given in appendix 8. They show that several firms on the Continent and in the USA are achieving higher outputs, sometimes with smaller crews, than are comparable firms in the UK.

117 Differences in manning scales in relation to output are even more marked with binding and finishing machinery, which, particularly on periodical work, was seen operating with substantially lighter crewing than in comparable firms in the UK, but with no apparent adverse effect on output, quality or the well-being of employees. Examples of bindery manning and output are given in appendix 9.

Labour flexibility

118 As already noted in paragraphs 90 and 93, union structure in all the countries appears to be a major factor in eliminating the demarcation problems which can be caused by inter-union boundaries. There are two other features of continental practice which contribute to the flexible and efficient use of labour. One is the acceptance on all sides that men who enter the industry in a semi-skilled capacity can, if they show willingness and ability, progress to skilled work as a result of experience, and in some cases trade tests. We saw examples in Holland and West Germany. The other feature is the acceptance that women may carry out those jobs for which they are physically and temperamentally fitted.

119 As a result of these conditions and attitudes, only one example was found of rigid barriers, either between occupations or between sections of the same occupation. This example was in the USA, where one firm reported its inability to introduce film composition owing to L & PIU/ITU demarcation problems.

No example was found on the Continent, where, although a man normally carries out his specialised task, he can be transferred if necessary, for example in a repro department, temporarily to another operation which he is capable of performing. This principle is also followed in other departments. An example was quoted in Holland at Van Loosbroek, where compositors were temporarily transferred to the packing department to deal with a rush of work.

120 In the continental firms we visited, women were universally employed to operate typewriter style keyboards producing hard copy or tape, including justified work and TTS, and the comment was made more than once that craftsmen would not regard some of this work as commensurate with their skill. Where women are employed, the appropriate minimum craft rate applies. Women are also employed in each of the three countries on retouching, while at Burda, for example, auxiliary labour is used on work such as contacting and make-up of film.

121 It appears that the general flexibility on all these matters enables the labour force to be balanced to the needs of the moment, creates opportunity and incentive, allows skill to be used where it is really needed, and increases security by promoting economic working.

Recruitment and training

Conditions for entry

122 Quotas for intake of apprentices are provided in the national agreements in all three continental countries, although the period of apprenticeship (3 to 4 years) is less than in the UK, and turnover is therefore quicker. In Italy, it was said that agreement with the union to have extra apprentices can readily be obtained when these are required. It has already been mentioned that machine assistants with suitable experience may submit themselves for the craft examination. The other great advantage which employers have in Italy and West Germany is freedom to meet deficiencies in their labour force by the introduction of adults from outside the industry in addition to normal recruitment. In West Germany, such people can take the craft examination when they reach the appropriate standard, which, if they gain suitable experience, can be quite soon after recruitment.

Approach to training

123 In modern conditions a man learning a craft cannot expect it to equip him with the necessary knowledge and ability to serve him for the whole of his working life. Instead he must expect to adapt himself to new techniques, and even to learn entirely new skills. This has implications for the nature and length of the training a new entrant is given. Greater thought seems to have been given to these problems by continental firms, and, in the USA, by the trade unions themselves.

124 The training of apprentices in the continental countries is usually of a very high standard. In Belser and Mohn, for example, two days a week are devoted to theoretical training, and Mohn has an excellent apprentice school within the factory. In Holland and West Germany there is a qualifying examination at the end of apprenticeship. At Enschedé a journeyman acts as 'father' to each apprentice, is responsible for overseeing his training, and is paid for doing so.

125 These systematic arrangements for entry, training and upgrading must foster a pride in achievement, which may account for the high appreciation of quality found in firms we visited.

Union participation

126 In some instances abroad we found that the unions play a much more effective part in training than they do in the UK. Not only do they encourage young people and adults to take advantage of technical school facilities, but sometimes they run their own correspondence courses and colleges.

Production environment

New equipment and services

127 The British printing industry has invested in equipment as up-to-date as any we saw abroad, but not on such a large scale. Both on the Continent and in the USA, many firms have undertaken massive re-equipment, particularly in the sheet-fed offset and binding sections, and in the USA in web offset sections also. There is also evidence that many companies, both medium and large, employ an increasing number of technicians to supplement and support line management.

Quality control

128 In general we found that printers abroad have to contend with similar problems to those in the UK, but emphasis on the application of quality control methods helps to detect difficulties at an early stage. On the Continent, in particular, we were impressed by the way certain firms have organised quality control right through from origination to printing and finishing, so that higher machine speeds and greater output are not accompanied by a loss of quality. Most of the managers with whom we talked are also convinced that it is impractical to expect staff to work to varying standards of quality and speed. In some of the larger overseas firms we visited, special staff are allocated for tackling jobs where exceptional quality is required.

129 Different firms employ different quality control systems. In most, colour proving departments are equipped with all facilities for densitometric control. None of the firms we visited was using 'non print' colour proving methods on offset work, although they all had established proving departments.

130 We saw two alternative methods of machine room quality control in operation. One West German firm had a centralised quality control section with its own staff, in this case ex machine minders, sampling from all machines and responsible for the quality of the product in its broadest sense, from imposition through to binding. Others had a more individual system, providing densitometers throughout the machine room so that each machine operator could take responsibility for the quality of his own work.

Factory design and maintenance

131 In many of the firms we visited, the design of factory and office buildings is of a very high standard, and great importance is attached to maintenance and cleanliness, particularly in West Germany and Italy. Not only in a physical sense, but also psychologically, these pleasant surroundings and high standards of housekeeping must assist in achieving high quality of production.

Pre press

Typesetting

132 We saw little evidence of the widespread adoption by continental firms of newer composition techniques, such as the use of photocomposition or computers. In many of those we visited, composition was not felt to be of major economic importance compared to either subsequent machine processes or colour reproduction. It was surprising to find a similar attitude in the USA, where there appears to be an increasing tendency to rely on typesetting supplied by trade houses.

133 The development of expensive high output film composition equipment contributes to this tendency. Apart from newspapers, the competitive economics of high speed, computer assisted film composition are not yet proven, and one of the pioneer firms we visited in this field is not breaking even, two years after installation.

134 In comparison with the USA or the Continent, the UK appears to be more advanced, both in the development of traditional hot metal composition, particularly in certain specialised fields such as mathematical setting, and in the introduction of newer film composition techniques. The combination of technical and economic factors, which has been responsible for the re-emergence of the specialist trade composition house in the USA, could have similar effect in the UK.

Reproduction

135 Electronic scanning techniques in colour separation are not employed to any appreciable extent on the highest quality litho and gravure work on the Continent. Two firms, Mondadori and Süddeutscher Verlag, had scanning departments in their own premises, run by Printing Developments International. Several had separate departments investigating the possibilities of transparency duplication.

136 A majority of gravure firms had separated their colour and monochrome sections. We raised the question of flexibility between mono and colour work on several occasions, and although rather more than half the firms reported complete flexibility in this area, they admitted to making little use of the facility. We also noted that, in some continental firms, women were employed on mono retouching, and in one firm, on colour retouching.

137 In general, we gained the impression that continental firms exercise a great deal of care in the selection and training of retouching staff. In several firms, a small group is reserved for retouching on the most exacting colour work, in the belief that one man cannot be expected to work to two different standards of quality. We saw no comparable arrangement in a British firm.

138 It is difficult to arrive at a clear picture of continental retouching performance. Quality was excellent in a variety of firms. Although we were

given surprising and conflicting times for hand retouching, on the whole they appeared high. Times quoted varied from 2 hours for scanned subjects to 50 hours for a single subject page and 80 hours for a multiple subject page of very high quality gravure mail order work.

139 From our discussions in the firms visited, we learned that there was a general shortage of litho and gravure reproduction staff in Italy and West Germany. A high labour turnover is said to prevail in some areas of West Germany such as Munich, where extensive use is made of trade houses for camera and retouching work.

140 We found a distinct tendency in the USA to be concerned with producing 'pleasing colour' rather than completely faithful reproduction. Quoted production times varied widely, even wildly, from 20 hours hand retouching on a high quality gravure 4 colour set in one firm, to 2½ hours per gravure set in another. On litho, times varied from 4 hours per set to 2 hours after scanning. We felt that most companies in the USA were using scanning techniques to a lesser degree than in the UK, possibly because the lower priced UK and continental scanners are only just beginning to gain acceptance.

Photoengraving and letterpress plates

141 We were not able to study this subject in detail, and only visited one in-plant engraving facility, where the quality and type of work was not outstanding, and one specialist, but conventional, trade house in the USA. The cost of multi-colour engravings severely militates against letterpress in the USA, and on several occasions we saw evidence of a decline there in demand for letterpress blocks. One printer was purchasing the bulk of his photoengravings from an Austrian firm which had a permanent representative in New York.

142 We saw no wrap-round letterpress on the Continent, and only experimental work in the USA. There is no doubt that the development of a light sensitive relief plate, capable of high quality and long runs, regarded as 250,000 in the USA, would increase interest in this process.

143 Our visits confirmed feelings that the UK is very much more advanced in the manufacture and use of duplicate plates for monochrome and line work than either the USA or the Continent. In addition, there appears to be more optimism in the UK over the continuing future of multi-colour letterpress than we found abroad.

Litho platemaking

144 We saw no unusual platemaking methods or materials except in one firm in the USA. This firm has built a completely automatic processing line for tri-metal plates. Plates are transferrred mechanically through coating, washing and lacquering, only etching being a manual transfer. There is three shift working, with one operator on each shift. Previously 50 men had been employed in this section.

Gravure cylinders

145 Many of the companies visited on the Continent were operating the conventional gravure process, not hard dot, and could show little technical improvement over the methods available in this country.

146 Two firms, Burda on the Continent and Kable in the USA, although

not engaged on similar work, were both making use of improved handling methods and etching techniques. It was pointed out that the successful operation of automatic etching machines, such as the Crosfield Etchomatic, requires a high degree of quality control in the preceding operations. These two companies in particular seemed to have mastered the necessary expertise for high volume, high quality production, with a minimum of labour content. It appeared to us that both in Italy and West Germany a great deal more attention was paid to quality and balance of colour transparencies in the origination department. None of the firms we visited was using electronic engraving machines for cylinder production, although we were told that this method is gaining ground in certain continental periodical houses.

147 The need for greater efficiency in colour proofing of cylinders appears to be generally accepted, and most of the leading companies in this country and abroad are installing specialised proofing presses. We found that three proofings are normal on higher quality work. In addition to this, new methods of quick colour proofing such as Cibachrome were being used by Burda.

Machine room

Gravure printing

148 The gravure firms we visited in the USA and on the Continent varied greatly in size and machine capacity. The majority were either printer/publishers in their own right or had close ties with other commercial concerns. This ability to generate their own printing might not be of much significance. Nevertheless, it was noticeable that, in many instances, the main problem in sustaining full plant utilisation stemmed from difficulties which arose out of the need to fit 'outside' contracts into existing schedules

149 Usually, the maximum web-width capability of the presses we saw overseas was directly related to this regular work demand. Many presses were relatively narrow. Moreover, they were rarely equipped with stitchers, which meant that collating and stitching were dealt with as subsequent binding operations. This contrasts sharply with the position in the UK where much capacity consists of large multi-unit presses, designed to produce a complete product. Where product requirements are not constant, such machines are likely to be less economic. These machines probably developed in the UK as a means of overcoming the problems and costs associated with the binding operation. Both in the USA and on the Continent, the effective use of modern finishing equipment enables the printer to undertake a wide variety of work on smaller printing machines.

150 We also noted that the overseas firms visited rarely operated their presses with more than eight units, or at most ten units, running into the folder. Except for isolated examples of ten unit running, which involves the use of two reels, presses were mostly being run with only one reel, either 4 colour backing mono or 4 colour backing 4 colour. Most presses were equipped with automatic register control devices and fully automatic or semi-automatic reel stands (flying pasters). Ink viscosity control was also in widespread use overseas.

Gravure output

151 There appeared to be little difference in the makeready times quoted by any of the firms when allowance was made for the variations in cylinder width and the number of printing units used. But very wide variations were found in actual running speeds and, more particularly, in average net outputs. In the USA, where the common objective is to run the press at all times at the maximum design speed, the results were phenomenal by comparison with firms on the Continent or in the UK, with the exception of one German firm. Eight and ten unit presses were seen running on periodical work at 27,000 or more cylinder revolutions per hour, netting 21–25,000. On the Continent and in the UK, average running speeds were much lower. Depending on the nature of the job and the circumstances of the run, cylinder revolutions per hour ranged from 12,500 on older presses to 20,000 for more modern machines. Mail order catalogues, for example, invariably run at substantially slower speeds than

periodicals. Net outputs on the Continent averaged from 12,500 to 15,000 cylinder revolutions per hour, whereas in the UK they ranged from 9,000 to 10,000, except in the case of one very modern high speed press which was netting 15,000. Even when account is taken of the difference in cylinder size and overall press characteristics, gravure net outputs in the British firms visited do not compare favourably with those achieved elsewhere.

Gravure quality

152 The quality of gravure printing was, with one exception, very good in the firms visited. In two German firms an exceptionally high standard had been attained, which it would be extremely difficult to match. Nevertheless, the standard produced in the British firms compared very favourably with most of the production seen abroad, and in some instances was decidedly superior.

Break-even levels

153 We were quoted different break-even points at which gravure was considered to be competitive with web offset. These varied from as low as 75,000 on the Continent (although the 250,000 level commonly quoted in the UK is more normal) to one million in the USA. High cylinder costs were generally held by continental firms to be responsible for retarding the progress of gravure printing, although it was acknowledged that it still had the edge when inferior quality paper had to be used.

Sheet-fed offset

154 On the Continent, the most striking aspect of sheet-fed offset pressrooms we visited, compared with British pressrooms, was the large amount of recently installed press equipment. This comes from two major manufacturers, Roland and MAN, with Nebiolo taking a proportion of the more recent additions, and some Miehle units in the very large sheet sizes. These presses, backed up by quality control systems, appeared to be achieving consistently high outputs on good quality colour work.

155 Some of the larger continental firms such as Mondadori and Mohn were producing high quality colour bookwork on 60 in. × 40 in. or larger presses, which gave a considerable commercial advantage on medium to long run work. Much of the work we saw running on their presses was international in nature and obviously destined for export.

156 In the USA, sheet-fed offset appears to have been relatively stagnant for some 4 to 5 years, although large presses (up to 55 in. × 78 in.) have in many instances competed successfully against web offset, probably because of their flexibility. This is particularly true of specialised plants producing labels or packaging. By contrast, for book production, greater use of standardised book sizes has encouraged a more rapid swing to web offset.

157 Whilst there is no doubt that web offset is taking work from large sheet-fed machines in general commercial printing, some firms are continuing to install sheet-fed presses for colour work. We also noted that a new generation of 55 in. × 78 in. presses, with sophisticated electronic controls and printing speeds of up to 7,000 sheets an hour, is coming into use. It is too early to assess their impact, but it is clear that even these sheet-fed machines are uncompetitive if sufficient work of the correct size for a web offset press is available.

158 Because of the limited period we were able to spend in each plant, it was not possible to record makeready times and net output figures ourselves. From the information we were given, however, we felt the mean outputs in most continental firms to be comparable with those in the best British firms. The fastest makeready times were being recorded in some efficient American firms. From the observed running speeds and quoted average outputs in these firms, it was obvious that they were obtaining a very high level of productivity on all sizes of machine.

Web offset printing

159 We visited a number of firms in the UK, on the Continent and in the USA with blanket to blanket, heat-set web offset installations. Presses of this type are normally single cut-off (22¾ in.–25¼ in. × 38 in. web width), although double width (35 in.–37½ in. × 50 in. web width), and in the USA even larger presses (up to 38 in. × 64 in. web width) were seen. Only one firm visited was equipped with drum type presses, mainly engaged on publication and mail order printing.

160 In the USA, the overwhelming preference is still for the single cut-off press. The rapid growth of the web offset process there is well known, and the massive demand for machinery of this type has led to the development of presses capable of producing work of extremely high quality at consistently high speed.

161 We saw several multiple installations of 4 or 5 unit machines in the USA. Printers with these installations seem to pursue an aggressive marketing policy and have often persuaded their customers to design commercial printing to fit the product capabilities of the press. In return, the printers are able to demonstrate that major economies can be secured against sheet-fed litho, even when competitors are using very large sheet-fed presses. This view is largely supported by statistics from PIA, which indicate that the vast majority of heat-set web offset installation in the USA are employed on commercial printing, with some emphasis on the printing of illustrated books, children's books and mail order catalogues.

162 By contrast to its use and development in the USA, there is far less web offset capacity in the continental countries visited. The level of demand is obviously a factor. One firm of general printers on the Continent, with a 5 unit, single cut-off installation, was said to be encountering difficulty in maintaining economic utilisation. Problems of utilisation were also being encountered in the UK, and firms referred to the inflexibility of the process arising from the fixed cut-off. The high initial investment is regarded as a further major deterrent. Many of the companies utilising web offset presses in Europe are printer/publishers producing their own illustrated books or part works, which provide a base load on which to maintain reasonable utilisation.

Web offset output

163 Good quality colour printing was seen being produced in the USA at speeds of up to 28,000 impressions per hour on single cut-off presses, and up to 24,000 impressions per hour on double width presses. One company claimed exceptional nets of 24,000 impressions per hour, although this varied according to the type of work being produced.

164 All of these were exceptional cases, and a number of American plants

admitted that their average nets on colour work varied between 14,000 and 18,000 impressions per hour. One such plant was producing very high quality book work. In our view, the exacting colour printing in this plant was quite the equal of the best quality sheet-fed offset production. The register of this work was impeccable.

165 In the UK and on the Continent, outputs were significantly lower and rarely exceeded nets of 12,000 impressions per hour. One notable exception is Mohn in West Germany, where the quality of printing was the equal of the best seen in the USA. In this firm, nets of up to 16,000 impressions per hour were usual.

Ancillary control equipment

166 It was hard for us to assess the reasons for the marked differences in output, but in our view the latest American presses are more advanced in design and greater attention has been paid to ancillary control equipment. The typical American web offset installation carries a large amount of such equipment, aimed at producing better quality at higher average speeds.

167 It was noticeable that, for any one press, ancillary equipment had been obtained from a wide variety of suppliers. The more important devices we saw were improved flying pasters, web tracking devices, variable speed drives for controlling web tension, colour and register controls, lint burners and humidifiers.

Web offset paper

168 We also concluded that paper was an important factor in output. Although it is impossible to quantify the effect of this, we noted that the standard of web offset paper supplied in the USA was extremely high. Paper wastage varied between 10 and 15 per cent on good quality colour work according to the length of run, but wastage at this level is no longer regarded as a serious problem, even on the Continent, because paper supplied on the reel is cheaper than sheet.

Double drum presses

169 Petty was the one firm operating common impression cylinder heat-set web offset presses. This company was equipped with presses of the double drum design (47¼ in. × 38 in. web width) capable of producing twice the product of the single cut-off blanket to blanket presses. These machines were being used mainly for publication and mail order printing. Makeready times were not very different from those for blanket to blanket presses, and the machines were normally running at speeds of between 10,000 and 12,000 cylinder impressions an hour. Nets were of the order of 8,000–9,000 an hour, which represents a speed of between 500 and 600 feet a minute. The company claimed that their machines were competitive with the single cut-off press, even when very high nets were being attained on the smaller machines.

170 We were impressed with the register and quality of the product. Management believed that the presses were competitive with sheet-fed offset at runs down to 100,000 and with multi-unit gravure presses for runs up to one million, subject to certain limitations in the range of paper used. It was admitted, however, that the gravure process produces better results on low grade papers, due to the heavier ink film weight carried by gravure.

Binding and finishing

Wire stitching lines

171 Owing to the absence of wire stitching equipment on gravure machines, and their relatively narrow width on the Continent, a high proportion of printed work is channelled through either wire stitching or unsewn binding. The effective and competitive operation of these sections is obviously of paramount importance.

172 Both on the Continent and in the USA, we found a high level of productivity in companies operating this class of equipment. In general, we felt that their running speeds were higher and manning of equipment lower than in equivalent British firms. Some comparisons are included in appendix 9.

Unsewn binding

173 There appears to be a steadily growing development of unsewn binding techniques, particularly in improving their effectiveness on coated papers. These advances are closely linked to developments in adhesives. Although one of the largest mail-order production units in the USA was running two shot systems, at very high speed, we saw widespread use of one shot hot melts. One continental company, Burda, has developed its own formula specifically for use on coated papers.

174 Unsewn binding techniques are being increasingly used for case bound book work. Mohn, for example, was running two highly automated Martini lines on lined work.

Case binding

175 Apart from the increasing use of unsewn techniques, the remainder of the case bound bookwork operation revolves round the effective use of conventional equipment. Both on the Continent and in the USA, we saw high speed forwarding lines running at speeds of 40 to 50 books a minute.

Conclusion

176 Most of the problems of the British printing industry which we discuss in this report are already known. Many of them can be and are being solved by the application of new techniques. Others, because they are concerned with attitudes and beliefs, can only be solved by people in the industry. We hope, therefore, that our report will lend itself to widespread discussion at national, regional, firm and chapel levels, and lead to new efforts being made to tackle problems to which techniques alone can provide no answer.

Charles Oliver Harry Kendall

H. G. Bellingham

Granville Eastwood

Peter Robinson

W. G. R. Hutchings Christopher

Secretary

Acknowledgements

In presenting our findings we are very conscious of the debt we owe to the numerous organisations and persons who assisted us with our investigations and made this report possible. We thank them all for their kindness, for the generous hospitality we received, and for the many friendships formed or renewed.

Appendix 1 Printing and Publishing EDC

Chairman	
N A Iliff	Deputy chairman, Shell Chemicals (UK) Ltd
Members	
B Aitken	Ministry of Technology
A de M Baynham	Deputy chairman and chief executive, Trident Group Printers Ltd
H G Bellingham	General secretary, Society of Lithographic Artists, Designers, Engravers and Process Workers
Sir Max Bemrose	Chairman, Universal Printers Ltd
S V Bishop	Joint managing director, British Printing Corporation Ltd
John Bonfield	General secretary, National Graphical Association
H J Bradley	General secretary, National Union of Journalists
John Brown	Publisher, Oxford University Press
C A Chadwyck-Healey	Vice chairman, Morgan Grampian Ltd
E W Cheadle	Deputy managing director, Thomson Organisation Ltd
G G Eastwood	General secretary, Printing and Kindred Trades Federation
R A W Emerick	National officer, National Graphical Association
N G Fisher	Chairman, Printing and Publishing Industry Training Board
V Flynn	General president, Society of Graphical and Allied Trades
Douglas Grant	Director, R & R Clark Ltd
H F Heinemann	Board of Trade
H J Jarrold	Chairman, Jarrold and Sons Ltd
F J Rogers	Managing director, International Publishing Corporation Ltd
T J Smith	Joint general secretary, Society of Graphical and Allied Trades
R E Speddy	National Economic Development Office
Secretariat	
C J Groome	National Economic Development Office
Ian Maclay	National Economic Development Office

Appendix 2 Biographical notes

Charles Alister
received his initial training for the printing industry through a whole-time course at the London School of Printing and was then with a medium-sized London firm of printers in various managerial capacities for 7 years. He joined the staff of the London Master Printers Association in 1937 and became assistant secretary of the British Federation of Master Printers in 1945. He is now its deputy director and head of the Industrial Relations Division. He is a representative of the Federation on several committees of the Confederation of British Industry and has participated in numerous visits and meetings abroad, including the survey teams sent to Sweden and Italy and the ILO printing conference in Geneva in 1962.

Felix Bellingham
is the general secretary of the Society of Lithographic Artists, Designers, Engravers and Process Workers. Born 1907, he was apprenticed to photoengraving at the Sun Engraving Company in London. He joined SLADE and PW in 1926, becoming assistant secretary (London branch) in 1936, national assistant secretary in 1946, and general secretary in 1956. He has been a member of the Advisory Committee on Graphic Reproduction of the City and Guilds of London Institute since 1956, and a member of the Executive Committee of the International Graphical Federation since 1960.

Roderick Boyd
is technical director of the Richard Clay group of companies. He was educated at Marlborough College, and then undertook a three-year training course at the University Press, Oxford. He served for two years in coastal forces and then worked for the H Wolff Book Manufacturing Company in New York City. Since 1956 he has worked for Richard Clay (The Chaucer Press) Limited, specialising in technical development and research. He is immediate past chairman of the Young Master Printers, and is a member of the BFMP Technical Committee and the Council of the Institute of Printing.

Granville Eastwood
has been general secretary of the Printing and Kindred Trades Federation since 1958. He served his apprenticeship as a compositor in Burnley and in 1934 became secretary of the local branch of the Typographical Association. He was later secretary of the North Western Group, and vice-president of the Association when he came to London on being elected assistant secretary of the National Federation in 1943. He serves on committees of the City and Guilds of London Institute and is a governor of the Chelsea School of Art. He is on the Boards of Governors of the National Heart Hospital and the Hospitals for Diseases of the Chest. Mr Eastwood is a member of the Printing and Publishing EDC. He is also a member of the Printing and Publishing Industry Training Board. He has travelled abroad extensively and played a part in the discussions which led to the formation of the International Graphical Federation in 1949. In 1962 he was a member of the British delegation to the ILO printing conference in Geneva.

Ron Emerick
is the national lithographic officer of the National Graphical Association, and a member of the Printing and Publishing EDC. Educated in London, he commenced his apprenticeship at the age of 14 with Sir Joseph Causton's, London. On completing his apprenticeship he had engagements in several litho shops in London, until the commencement of war. During the war he served with a field survey company in Egypt, Italy and Greece. On return from war service, he resumed employment at the shop where he was before the war, until elected to the position of assistant branch secretary, London office.

Robert Gedling
is a member of the staff of the Industrial Relations Division of the British Federation of Master Printers, in the post of labour secretary. He has been a member of the Federation secretariat at both national and regional levels for the greater part of his career, commencing in 1939 as assistant secretary of the Lancashire and Cheshire Alliance in Manchester. After a subsequent period at the national Federation office, for a number of years he served the London Master Printers Association, first as assistant secretary and later as deputy secretary. He returned to the national Federation office in 1961. In 1963 he was secretary to a survey team which visited Switzerland.

Christopher Groome
is secretary of the Printing and Publishing EDC, and also secretary of the Joint Mission. He was educated at Kettering Grammar School and Christ Church, Oxford, graduating in philosophy, politics and economics in 1962. Until his appointment at the National Economic Development Office he worked for Rowntree and Company Limited, first as marketing assistant in York, and then as assistant marketing manager in Toronto, Canada.

Roy Hutchings
is a national officer of the National Graphical Association. He completed his printing apprenticeship at Plymouth where he was association branch secretary from 1939 to 1951, during which period he also served for a time as South Western regional secretary, and also as that region's representative on the Executive Council. In 1951 he was appointed to the post of association organiser for the South West, South Wales, and part of the Midlands, and in 1956 was then elected national officer. Since that time, one of his principal duties has been to deal with machine questions involving photogravure, aniline, letterpress and web offset printing.

Henry Kendall
is head of the Management Services Division of the British Federation of Master Printers. He was with a large firm of cheque, bank note and commercial printers for a number of years before the war and joined the BFMP in 1947. He has been responsible for introducing and revising the BFMP costing system in many member firms and for such developments as the management ratios scheme and the BFMP computer service. He was secretary to a survey team which visited West Germany in 1960, and in 1961 he visited the USA to study management services in the American printing industry.

Edward Manning
has served as a vice-chairman of the British Federation of Master Printers' Labour Committee since 1955 and as chairman since 1968. He has been a member of the BFMP Council since 1950. Educated at Wycliffe College, he is now group labour relations manager of ES & A Robinson (Holdings) Limited, Bristol, printers and packaging specialists. This group uses all principal printing processes and deals with a wide range of products, including paper, paper bags and paper boxes. He was an active Young Master Printer and was chairman of the South Western Alliance YMP Group 1950–51. He served as president of the Bristol Master Printers Association 1955–57 and chairman of the Bristol and District JIC 1960–61. He is a corporate member of the Institute of Personnel Management.

H William Miles
is the national assistant secretary of the Society of Graphical and Allied Trades. He has had extensive experience of the different processes and practices in the printing industry, having started his career in general printing and later moving to the production of newspapers and periodicals. Mr Miles was closely associated with trade union work at chapel, branch and national levels before being elected national assistant secretary of his union in 1967. He has represented SOGAT at the Trades Union Congress and conferences of the Printing and Kindred Trades Federation, and has been a member of delegations appointed to study the printing industry abroad. The sphere of Mr Miles' responsibilities requires his frequent participation in discussions with other unions, employers' organisations and government departments on a wide range of subjects affecting the interests of SOGAT members.

Peter Robinson

is now joint managing director of the British Printing Corporation and was formerly the director in charge of the companies which comprise the Packaging and Paper Group. He gained a diploma in printing at Leeds after the war and joined Taylowe Limited in 1954, as works manager, becoming managing director in 1963. He was a director of Hazell Sun and joined the board of BPC in 1966. He is also a director of BPC's two Canadian companies. He is an associate member of the Institute of Printing and a council member of PIRA, the research association of the printing, paper and board, and packaging industries.

Robert Speddy

is the Office member of the Economic Development Committees for the Printing and Publishing and Paper and Board industries. He graduated from Durham University in 1952 and later did post-graduate work on economic planning at Oriel College, Oxford. Before joining the National Economic Development Office, he held various administrative posts in Malaysia.

Appendix 3 Visits and meetings

United Kingdom

Firms
Eric Bemrose, Liverpool
Hazells Offset, Slough
Jarrold and Sons, Norwich
Petty and Sons, Leeds
Southwark Offset, London
Sun Printers, Watford

Holland

Firms
C de Boer Jr, Hilversum
Drukkerij van Loosbroek, Oss
Enschedé en Zonen, Haarlem

Unions
Algemene Nederlandse Grafische Bond
Nederlandse Christelijke Grafische Bedrijfsbond
Nederlandse Katholieke Grafische Bond

Employers' federations
Federatie der Werkgeversorganisatien in het Boekdrukkersbedrijf
Koninklijke Nederlandse Bond van Steen-en Offsetdrukkerijen en Fotolithografische Inrichtingen

Italy

Firms
Arnoldo Mondadori Editore, Verona
Istituto Geografico de Agostini, Novara

Unions
Federazione Italiana Lavoratori Poligrafici e Cartai
Federazione Italiana Lavoratori del Libro
Federazione Italiana Lavoratori Arte Grafica e Cartaria

Employers' federation
Associazione Nazionale Italiana Industrie Grafiche Cartotecniche e Trasformatrici

West Germany

Firms
Belser Druckerei, Stuttgart
Burda Druck, Offenburg
Mohn Druck, Gütersloh
Süddeutscher Verlag, Munich

Union
Industrie-gewerkschaft Druck und Papier

United States of America

Firms
I S Berlin Press, Chicago
Brock and Rankin, Chicago

Chicago Rotoprint, Chicago
Davis Delaney, New York City
Editors Press, Hyattsville, Maryland
Fawcett-Haynes, Rockville, Maryland
Harvard University Printing Office, Allston, Massachusetts
Kable Printing, Mt Morris, Illinois
Poole Printing, Chicago
Printing Developments International, Chicago
Western Publishing, Racine, Wisconsin
Wright Pilgrim, Boston, Massachusetts

Unions
International Brotherhood of Bookbinders
International Lithographers and Photoengravers Union
International Lithographers and Photoengravers Union, Boston local
International Printing Pressmen and Assistants Union of North America
International Typographical Union, Chicago local

Employers' federations
Printing Industries of America
Printing Industry of Washington DC

Other organisations
American Federation of Labor and Congress of Industrial Organisations
Research and Engineering Council of the Graphic Arts Industry
US Department of Commerce, Printing and Publishing Industries Division

Appendix 4 Descriptions of firms

figures relate to the time of our visits

United Kingdom

Eric Bemrose, Liverpool
Gravure printer with 1,570 employees and a turnover of £5½ million. Production is mainly of periodicals and newspaper preprints, with some commercial printing. Part of News of the World group, but little work comes from the group.

Hazells Offset, Slough
Web offset printer with 450 employees and turnover of £2 million. Output is 60 per cent periodicals, 10 per cent books and 30 per cent commercial printing. Part of BPC group.

Jarrold and Sons, Norwich
Web offset and sheet-fed litho printer and bookbinder with 1,000 employees and a turnover of £3 million. Production is about 60 per cent illustrated books, many in international editions, and 40 per cent commercial work. Jarrold's own book and postcard publishing accounts for one twelfth of total turnover.

Petty and Sons, Leeds
Web offset and sheet-fed litho printer with 600 employees and a turnover of £2¼ million. Books account for 4 per cent, publications 38 per cent, mail order 31 per cent and other commercial printing 27 per cent. Part of BPC group.

Southwark Offset, London
Web offset plant with 800 employees and £3 million turnover, specialising in periodicals. Part of IPC's printing subsidiary. Large proportion of work comes from IPC publishing divisions.

Sun Printers, Watford
Gravure and letterpress printer with 3,150 employees and £8½ million turnover. Mostly periodicals, but some commercial printing. Part of BPC group. Most work comes from outside the group.

Holland

De Boer, Hilversum
Gravure and letterpress plant with 440 employees, concentrating on periodical printing in a price competitive market. Has contracts for the two main Dutch radio and TV magazines. Forty per cent of work is generated within the company. De Boer is a printer/publisher with plants for letterpress at Gouda, and offset bookwork at Utrecht.

Enschedé en Zonen, Haarlem
Letterpress, gravure and direct plate printing plant. Enschedé have a separate litho plant and a total of 1,100 employees. Production is just over 50 per cent security printing and the remainder is commercial work. Own studios for artwork.

Van Loosbroek, Oss
Web offset and sheet-fed litho printer with 325 employees, producing commercial work such as brochures and catalogues.

Italy

Arnoldo Mondadori Editore, Verona
Web and sheet-fed gravure and offset litho plant with 2,750 employees. Turnover is £12 million. Production is 10 per cent books (200,000 perfect bound and 400,000 case bound books per week), 40 per cent periodicals and 50 per cent commercial work (in 17 languages).

Fifteen per cent of production is exported to France, 8 per cent to West Germany and 4 per cent to UK. Mondadori is an integrated paper maker/printer/publisher with 3,600 employees in total. Over half the Verona production is for Mondadori publishing.

Istituto Geografico de Agostini, Novara
Plant has the three main processes, with main development in web offset and sheet-fed litho. Producing books, maps, periodicals, part works and commercial work, Agostini is a printer/publisher with 1,300 employees. It generates two-thirds of printing output within the company. Exports are mostly of books and part works.

West Germany

Belser, Stuttgart
Gravure and sheet-fed litho commercial printer with 700 employees in Stuttgart. Specialises in high quality, long run mail order catalogues, including one of 6½ million copies.

Burda, Offenburg
Gravure plant with 2,200 employees. Production is 65 per cent periodicals and 35 per cent commercial work. Ten per cent is exported, mostly to France and the UK. Burda is a printer/publisher with offset and gravure plants in Darmstadt, and a total of 5,000 employees. Some reproduction work is done outside.

Mohn, Gütersloh
Web offset, letterpress and sheet-fed litho printing and bookbinding plant with 1,800 employees. Produces case bound books (100,000 per day) and periodicals, also gramophone records. Mohn is a printer/publisher with 70 per cent of production going to its own book clubs. Turnover £13 million. The firm had only 70 employees in 1946 and did not start book club printing until 1950. This was followed by a record club. The firm markets internationally, has production facilities outside West Germany, and plans further expansion abroad.

Süddeutscher Verlag, Munich (Schwabing)
Gravure and sheet-fed litho plant with 400 employees. Produces periodicals, maps and commercial work. Nearly 20 per cent of offset printing, chiefly maps, is exported. Süddeutscher is a printer/publisher with 3,500 employees and £15 million turnover. Own reproduction agencies. Its other Munich plant produces a national daily newspaper and also does typesetting and letterpress book printing.

United States of America

I S Berlin Press, Chicago
Web offset and sheet-fed litho printer with over 500 employees and $15 million turnover. Production is mainly of maps and commercial work. Type matter and about half the colour reproduction work are bought from trade houses. Has recently gone into creative/publishing business.

Brock and Rankin, Chicago
Trade binder specialising in case bound book work. A subsidiary of W A Kreuger.

Chicago Rotoprint, Chicago
Large gravure plant with 870 employees. Concentrates on catalogues and periodicals. Part of W F Hall. 1967 turnover of the five companies in the group was $86 million.

Davis Delaney, New York City
Letterpress and sheet-fed offset commercical printer (average run 40,000) with $4 million turnover. Makes extensive use of trade houses for both preparatory and finishing work.

Editors Press, Hyattsville, Maryland
Web offset and sheet-fed litho printer with 150 employees and $5 million turnover. Produces periodical and commercial work. Runs vary from 15,000 to 500,000, but are mostly 60,000—100,000. Makes extensive use of trade houses for composition and colour separations. Subsidiary of Kiplinger organisation, which takes 10 per cent of capacity.

Fawcett-Haynes, Rockville, Maryland
Web offset and sheet-fed litho plant with 720 employees. Specialises in book printing. Makes extensive use of trade houses for composition and colour reproduction. Fawcett-Haynes have 3 plants with a total of 3,000 employees.

Harvard University Printing Office, Allston, Massachusetts
Letterpress and offset litho printers (maximum runs about 160,000) with 80 employees. Products include books, papers, journals, business forms and stationery, mainly for the university.

Kable Printing, Mt Morris, Illinois
Letterpress and gravure printers with 1,400 employees and $26 million turnover. Concentrates on monthly periodicals and catalogues. Subsidiary of Western Publishing.

Poole Printing, Chicago
Spread over 3 plants, Poole Printing has 1,300 employees and $25 million turnover. Main products are books and periodicals. One plant does typesetting and letterpress printing, the second is a web offset periodical printer, and the third, Newman Rudolph, specialises in web offset and sheet-fed litho.

Printing Developments International, Chicago
Studio using electronic scanners for colour separation, with 35 employees. Fifty per cent of turnover is for litho, 40 per cent gravure and 10 per cent photoengraving. PDI is a subsidiary of Time Inc and has other establishments in the USA, Mexico and Europe.

Western Publishing, Racine, Wisconsin
Web offset, letterpress and sheet-fed litho plant with 2,000 employees. Concentrates on books. The group is a vertically integrated printer/publisher with 6,000 employees and about $160 million turnover. Markets co-editions jointly with publishers in Europe and Australia.

Wright Pilgrim, Boston
Trade house specialising in colour separation, photoengraving and litho platemaking.

Appendix 5 Economic and industry statistics

		UK	*Holland*	*Italy*	*West Germany*	*USA*
Economic information	Population million	55	13	52	58	199
	Gross national product £000 million	40	8	24	43	287
	Percentage annual growth of GNP 1958–67	3.5	4.8	6.8	5.5	4.7
	Investment as a percentage of GNP 1963–67	17.6	25.5	20.4	25.8	16.7*
Printing industry information	Turnover £ million	570	210	230	500	5,000
	New investment £ million	28	14	10	45	180
	Employees 000	250	50	75	225	600
	Total establishments	7,500	2,500	6,250	9,400	26,000
	Establishments over 10 employees	3,300	1,000	930	3,800	9,600
	Establishments over 200 employees	200	40	60	200	400
Principal products as percentage of total sales (includes publishing)	Books	14	19	NA	13	16
	Newspapers	30	19		50	29
	Periodicals	17	24			18
	Advertising material	10	38		26	10
	Other	29			11	27
Main printing processes as percentage of combined sales	Letterpress	55	57	NA	62	39
	Litho	35	28		21	55
	Gravure	10	15		17	6
Foreign trade 1968 (includes publishing and newspapers but not postal trade) £ million	All exports	68.7	29.8	35.8	74.0	122.4
	All imports	36.6	16.7	9.8	24.0	48.1
	Exports to UK		4.3	3.1	4.3	11.2
	Imports from UK		1.6	0.7	1.7	13.0
Tariffs per cent 1969	Books, newspapers and periodicals	NIL	NIL	NIL	NIL	NIL
	Other	up to 16½	up to 15	up to 15	up to 15	up to 14

---

* Excludes government investment in plant and machinery.

Notes

1 'Printing' includes books, periodicals and commercial work. Newspapers, stationery and packaging have been excluded wherever possible.

2 Figures relate to 1967 except where stated.

3 The figures in this table are intended as a guide and should be used with caution. Some statistics have been adjusted to allow for differences in definitions used, or to update the latest available information.

Sources

Economic information	1	OECD National Accounts Statistics
Industry information	2	National Economic Development Office
	3	Via Board of Trade
	a	1963 Census of Production
	b	Censimento Generale dell Industria e del Commercio Industrie
	c	Annuario di Statistiche Industriale
	d	Jaarcijfers voor Nederland
	e	Vierteljahrshefte zur Wirkshaf
	4	US Department of Commerce
	a	Quarterly reports on Printing and Publishing
	b	General Statistics
	5	International Bulletin June 1964
	6	Netherlands Central Bureau of Statistics
	7	Statistics on Incomes Prices Employment and Productivity
Principal products	8	National Economic Development Office
	9	US Department of Commerce: Value of Shipments by Classes of Products
	10	Produktiestatistichen 1966 (via Board of Trade)
Main printing processes	11	National Economic Development Office
	12	US Department of Commerce
	13	Produktiestatistichen 1966 (via Board of Trade)
Foreign trade	14	Board of Trade
	15	OECD Commodity Trade
Tariffs	16	Board of Trade

Appendix 6 Declaration of interdependence

We the representatives of the Lithographic Liaison Committee, Union Employers Section of the Printing Industries of America, Incorporated, and the officers of the Lithographers and Photoengravers International Union, in order to ensure industrial tranquillity and to promote the general welfare and prosperity of the lithographic industry, do hereby affirm and publish the following articles of mutual understanding:

1 We, the employers and the union acknowledge our interdependence. The employer realizes he must attempt to provide jobs at fair wages, with good working conditions and continuity of employment. The Union recognizes the necessity for an employer to make a fair return on his investment and that profits are vital for the industry.

2 It shall be our aim to encourage the continuing expansion of our industry. As new methods are advanced and new equipment provided, they will be accepted willingly and adjusted realistically. The aim will be to utilize whatever becomes available to obtain competitive advantages for our industry. Manning and compensation for new equipment will be determined by joint action at the local level, not on the basis of what new equipment supplants, but on a basis commensurate with the skill and manpower necessary for its satisfactory operation.

3 We recognize the need to promote industrial education, and in cases of technological unemployment, to provide retraining where practicable.

4 We will not embark upon, or be a party to a program calculated, in letter or spirit, to restrain trade, or to circumvent the law of the land, wherein our actions might not be in the public interest.

5 The health, welfare and proper utilization of manpower will be our mutual concern.

6 The rights of management to manage will be respected and encroachment of this right avoided. Labor agreements will be respected in letter and spirit.

7 We acknowledge that the collective bargaining process must be preserved inviolate and that industrial peace is desired by all. To this end, a joint standby committee shall be appointed as an advisory body to assist in solving disputes that reach an impasse condition. Activation of the committee will be by mutual invitation only, from the disputants of the local area involved.

8 Finally, we concur that our industry can thrive best in an economy which is prosperous and in a world which is at peace. We shall seek, therefore, to promote full employment in the United States and Canada, to reason together to solve our problems, and to create a climate of harmony in which we may pursue our common goal: a prosperous country and industry.

Appendix 7 Union and employer organisations

Country	*Unions*	*Employer organisations*
UK	Four unions in size order: SOGAT: covers various stages of production: membership includes craft and semi-skilled NGA: covers composition, stereotyping and machining: craft SLADE: covers origination: craft STA: in Scotland: covers composition and machining: mainly craft These cover over 80 per cent of employees: organised by occupation PKT Federation includes above unions and four others whose occupations are not covered by the report	One employers' federation, BFMP, taking in 10 alliances in England and Wales, the Society of Master Printers of Scotland and 3 associations in Ireland, covers 80 per cent of industry, also stationery and packaging: BFMP negotiates with unions for England and Wales and SMPS negotiates for Scotland: special arrangements in Ireland FMPE covers process engravers
Holland	Three unions: NCGB protestant NKGB catholic ANGB general These cover 100 per cent of industry: organised by religion: negotiate jointly with employers	Three organisations: FWB, KNBSOFI and NBBP, cover nearly 100 per cent of industry: process organised: co-operate in negotiations with unions
Italy	Three main unions in size order: FIL del L communist FILAGeC catholic FILPeC social democrat These cover 40 per cent of employees: organised by politics/religion: negotiate jointly with employers	One organisation, ANIIGCeT covers 50 per cent of industry
West Germany	One main union, Druck und Papier, covers 70 per cent of industry	One organisation, BGV, covers 95 per cent of industry
USA	Seven unions: ITU typographers IPPAU pressmen and assistants IBB bookbinders ISEU stereotypers and electrotypers IPPDSEU plate printers, die stampers and engravers LPIU lithographers and photoengravers IMU mailers These cover over 50 per cent of employees: partly occupational, partly competitive: negotiations conducted at firm or local level by each union separately	Three central organisations: PIA with over 70 constituent bodies LPNA lithographers NAP photolithographers Negotiations conducted at firm or local level

Appendix 8 Examples of machine room equipment, manning and output

Gravure

output cylinder revolutions per hour except where otherwise stated

Example 1, UK
100 units. Nearly all were 13 unit machines built to the firm's own design. Manning of a typical 13 unit 72 in. press with 42 in. cut-off and running at 12,500 was 7 minders, 10 assistants and 2 reel hands (1 per web). Nets over a 7½ hour shift were 10,000 and makeready took about 8 hours. Running 10 units, there were 6 minders and 9 assistants.

Example 2, UK
Twenty-one machines comprising 193 units. A typical 18 unit 77 in. Goss was running at 15,000 and netting about 10,000. This machine was manned by 7 minders and 15 assistants. Another machine fitted with an automatic stacker had the same manning. The 13 unit 88 in. width Goss with 42½ in. cut-off was printing a newspaper colour supplement. It was running at 20–22,000 (up to 1,300 ft per minute), and netting only 11,600, because of trouble with the stitcher. Nets of 15,000 were said to be more usual. Manning was 6 minders and 11 assistants. An additional reelhand was required for foreign paper, making a total of 2 per flying paster. Manning on each of the two 4 unit Cerutti proof presses was 2 minders and 3 assistants.

Example 3, Continent
Two presses, working 3 shifts, The 8 unit 50 in. Super Albertina was running at 14,000. It was delivering via a counter/stacker with manual handling by an assistant on to a flat belt feeding up to a Krause 3 knife trimmer. This was operated by 2 men, with 2 men on delivery. Two units of the 9 unit 59 in. Albert were printing 24 pages mono with a minder and 2 assistants. Seven units were making ready on 2 webs (2 units mono perfecting and 5 units 4 colour backing mono), with a crew of 5 (2 minders, 2 assistants, 1 reel hand). It was stated that one assistant on the 2 units was a 'floater', and if he moved to the other end of the press, 2 men would run the 2 unit end.

Example 4, Continent
Four 10 unit presses of comparatively narrow width. The 50 in. Albert was running at 16,000 and netting 12,000. Makeready took 4–5 hours. Two presses were fitted with counter/stackers and running at 15,000. Two takers-off for machines equipped with counter/stackers, and 3 on other machines. Manning was generally 2 units per man.

Example 5, Continent
One 16 unit (2 × 8) Albert, one 14 unit Albert and a 16 unit Albertina with flat sheet delivery, each running at about 25,000 (1,000 ft per minute), averaging 20,000 over a 7½ hour shift on periodicals and 15,000 on mail order. Makeready time for 32 pages on 8 units was 4 hours. The 16 unit 70 in. Albert was running 10 units with 4 minders, 6 assistants and one reelhand. With automatic stacker, manning was reduced by 2 assistants.

Example 6, USA
All presses were Motter or Goss with fixed size folders. The Motter presses were rated at 31,500 and were running between 27,000 and 28,000, netting 21,000 normally, and 25,000 on the best shift. These presses were fitted with Hurletron register controls. Typical manning of a 10 unit 48 page press was 6 minders and assistants and 4 takers-off. An 88 in. press had 2 takers-off and 2 on Stobb bundlers.

Example 7, USA
All 49 units were Motter with fixed size folders. There were 6 presses delivering 48 or 64 pages. An 8 unit 68¼ in. 64 page press running at 20,000 (1,300 ft per minute) was manned by a crew of 9 men, including 4 takers-off. The number of takers-off was being reduced as the machines were fitted with packer boxes. The latest machine was an 8 unit 78 in. Motter with 34½ in. cut-off and rated for 2,000 ft per minute. It was not yet running above 1,700 ft per minute, about 35,000, net 28,000. Manning was as for the 68¼ in. machine with one extra taker-off.

Letterpress

Example 1, UK
The 38 in. × 51 in. flat-bed machines and the 21 in. × 28 in. Heidelbergs were producing high quality work, with running speeds around 5,000. Two Dawson, Payne and Elliott R 54s were running 35 in. × 45 in. sheets of full half tones at 5,000–5,500 sheets per hour and netting 4,000 over a shift. The sheet-fed rotary machines were printing from a mixture of thin originals, Balacrit plastic (0.063 in.) and College Electros.

Example 2, Continent
Variety of machines on jobbing work. Nine 20 in. × 30 in. Heidelbergs were running at about 3,000 and 2 Condors at 4,300. Manning on the smaller letterpress machines was one minder on each machine and an assistant to every 2 machines.

Example 3, USA
Three 5 unit Miehle 52 in. × 76 in. machines, one equipped with a reel feeding and sheeting attachment. Typical daily runs of 10¾ hours were 33,000, 30,000 38,000 and 26,000. Manning on each machine was one minder and 2 assistants.

Example 4, USA
Several web Cottrell machines, one 4 colour and three 2 colour. The modern 4 colour 23 in. × 34½ in. was running at 1,000 ft per minute, manned by 4 men on the machine and 3 takers-off. Makeready was said to take 28–30 hours. One older Cottrell machine had been converted to print from Dycril wrap-round plates, but was not running.

Sheet-fed offset

Example 1, UK
One 4 colour 37 in. × 52 in. Nebiolo (not running during our visit) and six 2 colour Mann Fast Fives and Mann Masters. The latter were running at 4,000, most others at 3,000. All were engaged on long run mail order work of good quality. Manning on the 2 colour machines was a minder and one assistant, with 2 minders and 2 assistants on the 4 colour machines. There was an additional assistant on delivery (floor hand) between 4 machines.

Example 2, Continent
Colour work was done on 2 or 4 colour MAN or Roland machines. A 4 colour Roland on good quality work was seen running at 5,500 and reported to be netting more than 4,500 over a complete shift. The manning of this machine was reduced to one minder, in addition to an assistant, on long runs.

Example 3, Continent
Machines either Roland or MAN, quad size or bigger. Three 4 colour, two 2 colour and two single colour. Running speeds varied between 4,500 and 6,000 according to quality, and nets were said to be 3,700–4,000. Manning of 4 colour machines was 2 minders and 2 or 3 assistants. The third assistant was frequently a girl standing at the feed board. Makeready on the 4 colour machines on good class work was 8–9 hours, 2 colour machines 6 hours, and single colour 2½–3 hours.

Example 4, Continent
Several 4 colour MAN V machines and one 2 colour MAN V. All the 4 colour machines were running at 5,000. Each was manned by 2 minders and an assistant. The minder in charge dealt with register and colour, the second minder with ink and water, and the assistant with paper.

Example 5, USA
Machines included a prototype of the new 4 colour 76 in. Miehle not seen working, two 2 colour 30 in. × 42 in. and two 5 colour 29 in. × 23 in. Six 4 colour 76 in. and 77 in. Miehle machines were running at 4,000 to 4,500, and netting 3,400 over 6½ hour shift. Time allowances on a 76 in. 4 colour press were 4.73 or 5.78 hours makeready (depending on wash-up) and 3.15 hours for a plate change only. These values apply if not more than half the sheet is ink covered. Up to three-quarters ink cover, there is an extra allowance of 1½ hours on makeready and 10 per cent on run. Over three-quarters ink cover these allowances become 3½ hours on makeready and 20 per cent on run. A 4 colour 25 in. × 38 in. Miller, adaptable as a 2 colour perfector, was running 4 colours at 4,900. The sheet-fed offset machines were manned by 78 pressmen working 3 shifts and allocated to machines as required.

Example 6, USA
One 4 colour 77 in. Harris. One new 78 in. Harris Lithotronic, fitted with electronic controls, was running at 4,200, printing a 52¼ in. × 75½ in. sheet in tight register. Manning was one minder, an assistant and 2 feeders. A 77 in. Miehle Perfector was running at 5,000 on book work. Manning was one minder and 2 handlers. Machines were all 3 to 4 years old, except the Lithotronic.

Example 7, USA
Five 4 colour 52 in. × 76 in. Miehle, one 5 colour of similar size, two 2 colour and one single colour. Also a new Miehle 78. The 4 colour machines were producing good quality work at 4,500–5,200 or children's books in line colour at 6,000. Running speed was said to vary with paper quality. Makeready was quoted at 5–6 hours on good quality work and 3–3½ hours on children's books.

Web offset

Example 1, UK
Several 2 unit, blanket to blanket machines, one 4 unit and a 5 unit. A typical 2 unit 22¾ in. × 36 in. Miehle Goss Dexter had 2 flying pasters, one folder, one double pass Offen drier, and a packer box. Running at 18,000, it was netting 14,000. Manning was 2 minders, 2 takers-off and 1 reel hand. Makeready took 2–3 hours. The 5 unit 22¾ in. × 36 in. Miehle Goss Dexter was fitted with 2 folders and 2 packer boxes and was running at 16–17,000 on 2 webs and netting 12–13,000. Manning was one reelhand, 3 minders and 3 takers-off. Makeready took 6 hours.

Example 2, UK
Two 4 unit 24 9/16 × 38 in. Miehle machines, one single unit Miehle and a 30 in. × 40 in. Timson. One 4 colour was running at 15,000 for heavy inking on coated paper, with a crew of 3 minders, 2 assistants and 2 girls. Additional help was available in the room.

Example 3, UK
Two 4 unit double cut-off Halley drum presses, one 4 unit 50 in. Solna double width blanket to blanket press, and a single unit 50 in. Solna double width blanket to blanket press equipped with a sheeter. On the 4 unit presses, running speeds varied from 10,000 to 12,000. The drum presses were netting 8–9,000 over a shift. Manning on 4 unit presses was 3 minders and 4 assistants. Makeready was 4–8 hours. Three shift working.

Example 4, Continent
Two machines. Five unit 23 9/16 in. × 38 in. ATF blanket to blanket press with folder was running at 17,000. Manning was 3 minders and 5 assistants. Another 5 unit ATF blanket to blanket press was running 2 webs at 17,500 and manned by 3 minders and 6 assistants.

Example 5, Continent
Two single unit, single cut-off MAN, one 4 unit, single cut-off GMA and a recently installed 4 unit 38 in. MAN with GMA stacking unit, producing quality and register equal to good sheet-fed work. The single colour machines were running at 15,000 (former fold) and 13,000 (chopper fold). The 4 colour MAN was running at 18,000 and netting 12–13,000. Manning was 2 minders, 2 on delivery and one reelhand. Change-over time was 40 minutes.

Example 6, Continent
Five unit single cut-off GMA Levey perfector with 2 folders and one sheeter was running two 36 in. webs at 13–14,000. Manning was 2 minders, 2 assistants and one taker-off. The minder in charge dealt with the top web, and the second minder with the bottom web. One assistant dealt with the paper and the other with the folders.

Example 7, USA
A 5 unit 22¾ in. × 38 in. Harris M1000 had one sheeter, 2 reel stands, double former folder and Otepka drier, and WPE tracking boxes. Said to run at 24,000 on mail order catalogue work. The sheeter on this machine was running at 28,000, considerably faster than the folder. Net machine output was 17,600. Manning was 2 minders and 3 assistants. A 4 unit 22¾ in. × 38 in. Miehle had a sheeter and 2 reel stands. It was running a double parallel job. Working three shifts, this press had netted 14,600 over the previous year. Manning was 2 minders and 2 assistants.

Example 8, USA

A 4 unit Harris M1000 had a Gardner Overly drier, 2 reel stands, flying paster and Dahlgren damping. It was running at 18,000 and netting 13,500–14,000. Manning was 4 minders and about 4 assistants. Makeready was quoted at 3½–4 hours on a 4 colour job.

Example 9, USA

Three single cut-off blanket to blanket M1000 presses and one larger machine, all Harris Cottrell. Except for the new machine, which was not in production, they were working 24 hours on three shifts. Running at 18,000 and 20,000 on uncoated, and 16,000 on coated paper, the output was good quality 4 colour book work. All machines were fitted with Dahlgren damping using a piped alcohol system. They also had tilt boxes (electric guide roll attachments). Machine details were:

Machine A	6 unit 22¾ in. × 38 in. press with one reel stand. Manning was one pressman, one assistant pressman, one console operator, one paster, one helper and one taker-off (packer box delivery).
Machine B	6 unit 22¾ in. × 38 in. press with 2 reel stands. Similar manning to machine A, but one packer extra.
Machine C	8 unit 23⅝ in. × 38 in. press with 2 reel stands. Manning was one pressman, 2 assistant pressmen, one console operator, one paster, one helper and 2 or 3 packers.
Machine D	38¾ in. × 40½ in. press with 2 reel stands. This machine was for printing 6 in. × 9 in. signatures. Same manning as machine A.

Example 10, USA

A 4 unit 35⅜ in. × 47 in. Hantscho was fitted with WPE driers and web guides, Also a Butler paster enlarged for 330 ft festoon capacity (160 in the standard machine). The press was running at 1,200 ft per minute, that is 24,000 iph, and produced 8½ in. × 11 in. periodicals and 8½ in. × 6⅝ in. school books. The folder was both a parallel and chopper unit, producing 8½ in. × 11 in. 4 × 8 pages or 2 × 16 pages, or 8½ in. × 6⅝ in. 48 pages folded right way of the grain. Makeready with no folder change, but changing paper, was 2 hours (8 plates).

Example 11, USA

Six unit 23½ in. × 38 in. Harris Cottrell M1000. This press had 4 WPE pasters set at right angles to the machine. Also 3 folders and Otepka drier, producing 32 page signatures. Running at 800–1,000 ft per minute, that is 30,000 iph, the press was netting 17–24,000. We saw a twin web job running, said to be netting 23,000. A 5 unit 22¾ in. × 36 in. Hantscho had 4 reel stands and was running at 800 ft per minute and averaging 15–20,000 iph. A crew of 4 on the machine, plus men on delivery. A similar 23½ in. × 40 in. Hantscho had an Offen drier and chopper folder. It was running at 700 ft per minute with a similar crew. Both Hantscho presses were on publication work, 11¼ in. page depth. The 3 presses were producing about 3 million signatures per week.

Employer/union agreements on manning of web offset presses USA

City	*Press details*	*Manning*	*Union*
Chicago	5 unit press, 22¾ in. × 36 in.	head pressman 2nd pressman 1st feeder 2nd feeder web helper	LPIU
New York*	5 unit press, 23½ in. × 38 in.	head pressman 2nd pressman job pressman assistant pressman tender	IPPAU
Chicago	4 unit 8 plate press, 36 in. web with folder	head pressman 2nd pressman senior assistant junior assistant	IPPAU
New York	4 unit 8 plate press, 18 in. up to 38½ in. web	head pressman 2nd pressman assistant tender	IPPAU
	4 unit 8 plate press, 39 in. up to 55 in. web	head pressman 2nd pressman 2 assistants	IPPAU
Washington DC	4 unit 8 plate press up to 40 in. web	head pressman 2nd pressman 2 assistants	IPPAU
Chicago	2 unit press, 23⅞ in. × 38 in.	pressman senior assistant floor help assigned as needed by management	IPPAU
New York	2 unit press, 4 plate cylinders, 31 in. to 38½ in. web	pressman assistant tender	IPPAU
Washington DC	2 unit press, perfecting, up to 40 in. web	head pressman 2nd pressman assistant	IPPAU

* When running 4 colours perfecting there will be one additional assistant pressman. When running 3 or 4 reels there will be one additional journeyman pressman.

Manning does not include packer or jogger personnel.

Appendix 9 Examples of bindery manning and output

Wire stitching and trimming lines

	Equipment	Number of feeding/ gathering stations in use	Manning			Running speed per hour	Average speed per hour
			men	women	total		
Example 1, UK	Muller	4	–	–	4	5–5,500	3,500–4,000
Example 2, UK	Muller	6	1	5	6	5–6,000	4,500
Example 3, UK	Sheridan	6	4 or 5	–	4 or 5	4,000	–
Example 4, Continent	Sheridan	5	–	–	3	8,000	–
Example 5, Continent	Muller	6	2	1 or 2	3 or 4	4,000	–
Example 6, Continent	Muller	3	–	–	4	5,000	–
Example 7, Continent	Muller	3	1	1	2	6–7,000	–
Example 8, Continent	McCain	4	2	–	2	–	5,000
Example 9, Continent	Muller	3	–	–	4	5,000	–
Example 10, USA	McCain	4	1	1	2	9,500	–
Example 11, USA	Sheridan	6	2	2	4	–	4,500
Example 12, USA	McCain	4	2	1 or 2	3 or 4	–	4,000
Example 13, USA	McCain	6	1	2 or 3	3 or 4	8–9,000	7,000

Notes: 1 These figures refer to the time of our visits, when we were able personally to record manning levels and running speeds. Average speeds are as quoted by managements.

2 The example numbers in this table do not correlate with the example numbers for other bindery equipment.

Other bindery equipment

Example 1, UK
Two Martini BBA lines for one-up binding were running two shot adhesive at between 4,000 and 5,000 per hour, netting approximately 2,500. There were 3 operators on the gathering, binding and trimming lines. Two Sheridan 3 knife trimmers were fed automatically from the gravure presses via a conveyor and stacker. The manning on each line was 6 assistants on the stacker and 4 assistants on the trimmer. The wire stitching and trimming lines had recently been equipped with automatic feeders crewed by men.

Example 2, UK
Two Martini BBA lines linked to saws and CT trimmers. Each line was running one-up work consistently at 6,000 per hour (with splitting saws raised). Each line was crewed by two operators, one cover feeder, one woman to every 3 boxes, one woman checker at the end of the gatherer, two women inspectors on the delivery line and one woman stacker.

Example 3, *Continent*
The highly mechanised bindery was equipped with American CTI overhead fork-lift conveyors, which moved work from upper to lower floors, and also a specially designed unit built into a

connecting bridge with the press room. On unsewn binding there were 4 Martini BBA lines and one Martini Comet line with 12 boxes. Seven boxes, fed by 4 women, were in use, and speed was 8,000 per hour. This line was connected to a Martini trimmer, trimming in piles of three with 2 takers-off.

Example 4, *Continent*
A Martini BBA one shot hot melt machine had a crew of 12 with 36 stations, one man feeding 4 or 5 boxes. The machine was not running, but average production over a 24 hour period was said to be 60,000 (2,500 per hour). The Krause 3 knife trimmers were operated by 4 men, 2 feeding and 2 stacking.

Example 5, *Continent*
This is a large and highly automated book producing plant. The two main lines centred round a pair of 37 clamp Martini BBA machines, coupled to Martini Sheridan gathering units. One binder was fitted with a second PVA glue tank. A lining station was putting on a stretch crepe paper. The machines delivered into a pair of Wursch and Brown Boveri radio frequency drying units from which the two-up books were taken by Daviero newspaper type conveyors to the circular saw and Sheridan CT trimming lines. Three casing-in lines, one of which was the new high speed Smyth backer, had run at up to 50 per minute, but were running at 40 per minute during our visit. A standard Smyth machine was fitted with a larger pulley and, along with the Smyth 57 pressing unit, was running at about 40 per minute. The high degree of automation had reduced the number of people required for handling and stacking down compared with British book production plants. Otherwise manning levels appeared to be similar.

Example 6, *USA*
A Sheridan 60 box gatherer, linked to a 57 clamp two shot binder, was running at 8,100 per hour. An interesting feature of this machine was the addition of three inserter units which the firm had built themselves. The tempo in this bindery was extremely high, a large mail order catalogue being produced on two binders at the rate of 220,000 per day.

Example 7, *USA*
A Sheridan book gathering unit was fed by one woman to 5 boxes. The forwarding of sewn books was via a Crawley nipper, gluer and re-nip line, connected to a Sheridan CT trimmer, running at 40 books per minute. Knives were said to last one shift only. There were two conventional Smyth rounding and backing, casing-in and building-in lines, with one man on each machine, producing 35,000 books per day. The Dexter casemakers were running at 2,450 per hour, with a two hour changeover period.

Example 8, *USA*
This firm had 4 Magnacraft mailers coupled to Magnacraft stackers, running at speeds of 7–8,000 per hour and delivering direct into postal bags. Crewing was 8 on each line. Unsewn binding was on a 1962 Dexter, with 24 pockets and wire stitching. Normal running speeds were 6–7,000 per hour with one shot hot melt adhesive. This binder was used only on periodical work.

Example 9, *USA*
This firm was using Dexter casemakers producing about 2,500 copies per hour. Changeover times were said to average one hour, although times down to 38 minutes had frequently been recorded. A Seybold 4VA trimming machine was running at 25 cuts per minute, with a crew of 3. A new Smyth casing-in line consisting of rounder and backer with casing-in and pressing units, rated at 60 per minute, had run at up to 52 books per minute. Manning was one woman feeding, one backer operator, one casing-in operator, two women stacking and two men cartoning. The casing-in operator also ran the pressing unit. The changeover time on this line was 4 hours. The minimum economic run before a major size change was said to be 20,000.

Example 10, *USA*
There were 13 folders, mostly small, with one folder operator to 3 folders, one loader to 4 folders, and one or 2 women stacking, depending on the foreman's assessment of the work. With the smaller machines, one woman was frequently feeding, taking off, banding and boxing. Small pieces of equipment were capable of being moved to set up more efficient lines for particular jobs.

Printed in England for Her Majesty's Stationery Office by Williams Lea/WLP Group/London
Dd 500361 K48 3/70

UNIVERSITY LIBRARY
OP
27 AP
1970
CAMBRIDGE

NATIONAL ECONOMIC DEVELOPMENT OFFICE

PRINTING IN A COMPETITIVE WORLD

Report of the Printing and Publishing EDC's Joint Mission to printing firms in five countries

7 AP 1970
CAMBRIDGE

LONDON
HER MAJESTY'S STATIONERY OFFICE 1970

The Economic Development Committees are composed of representatives of the three parties involved in industrial and economic development—management, trade unions and government. Their secretariat is provided by the National Economic Development Office, which is an independent, publicly financed body. NEDO *has prepared this report for publication on behalf of the* EDC *for Printing and Publishing and is solely responsible for its contents. For administrative convenience the booklet is printed and published through* HMSO.

National Economic Development Office
Millbank Tower, 21/41 Millbank
London sw1
March 1970

SBN 11 700398 0

Foreword

This report was prepared by a team of managers and trade unionists from the printing industry and is based on inquiries made during visits in five countries.

The report describes the pressures for change in the industry, discusses many of its problems, and points to areas where action is needed to make us more competitive.

I am convinced that the report will prove of value and hope that it will be widely read and used by everyone with an interest in the industry's future.

Neil Iliff

Neil Iliff

Chairman
Printing and Publishing EDC

Contents

page

Introduction

Printing and Publishing EDC 1
Imports and exports of print 1
The Joint Mission 1
Method of working 2

Operating environment

Economic background 3
Comparative wage costs 3
Government aid 3
Government services 4
Taxes and tariffs 4
Postage costs 6

Social environment

Social factors 7
Approaches to common industry problems 7

Changing pattern of industry structure

Present position 8
Printer/publisher integration 8
Use of trade houses 8
Pressures for change 9

Forward planning

Corporate objectives 10
Building for the future 10

Marketing

Marketing's role 11
Product and customer specialisation 11
Price, quality, delivery and service 12
Export selling 12
Belief in market expansion 13
UK attitudes to market expansion 14

Use of management information

Control systems 15
Costing methods 15
Pricing policies 15
Productivity improvement 16

page

Financial and investment policies

Attitudes to investment 17
Evaluation of investment projects 17
Plant write-off 17
Profitability 18

Management

Quality of management 19
Management control 19

Management/employee relationships

Communications 20
Interdependence 20

Union and employer organisation

Degree of organisation 21
Negotiations and problems of multiple organisation 21
Union staffing and services 22

Wages and conditions

Wages 23
Weekly hours, holidays and overtime 23
Shift systems and premiums 25
Work study and incentive schemes 26
Fringe benefits 26

Deployment of labour

Machine manning 27
Labour flexibility 27

Recruitment and training

Conditions for entry 29
Approach to training 29
Union participation 29

Production environment

New equipment and services 30
Quality control 30
Factory design and maintenance 30

Pre press

Typesetting 31
Reproduction 31
Photoengraving and letterpress plates 32
Litho platemaking 32
Gravure cylinders 32

page

Machine room

Gravure printing 34
Gravure output 34
Gravure quality 35
Break-even levels 35
Sheet-fed offset 35
Web offset printing 36
Web offset output 36
Ancillary control equipment 37
Web offset paper 37
Double drum presses 37

Binding and finishing

Wire stitching lines 38
Unsewn binding 38
Case binding 38

Conclusion 39

Acknowledgements 40

Appendices

1 Printing and Publishing EDC 41
2 Biographical notes 42
3 Visits and meetings 45
4 Descriptions of firms 47
5 Economic and industry statistics 50
6 Declaration of interdependence 52
7 Union and employer organisations 53
8 Examples of machine room equipment, manning and output 54
9 Examples of bindery manning and output 59